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THE MUNICIPAL INDEX and ATLAS, used in connection with the current advertisements in THE AMERICAN CITY, places officials in the most favorable position to obtain all types of available equipment and supplies from manufacturers who desire to serve municipal government departments. This 791-page annual is published by The American City Magazine Corporation, 470 Fourth Ave., New York 16, N. Y.

See pp. 19, 21, 24, 25, 26, 28, 135, 137, 139, 141, 143, 145, 147, for catalogs and publications on municipal and civil subjects.

List of coming conventions, page 121

Index to Advertisements, page 186

40 Years Growth in 2 Years

THE telephone was forty years old before there were six million Bell telephones in this country. Now there are twenty-nine million. The last six million have been added since these little tots were born—in about two years instead of forty.

But growth is not the only measure of the increased value of your telephone service. Many new developments, worked out in Bell Telephone Laboratories and now being put into service by your telephone company, are extending its scope and usefulness.

There is the extension of telephone service to automobiles, trucks, busses, boats, trains and airplanes.

There is the $200,000,000 program to extend and improve service in rural areas. Today there are 50% more rural telephones than when the war ended.

Then there is coaxial cable, no thicker than your wrist, which can carry 1800 Long Distance calls at one time. And along with it is a new system for transmitting telephone conversations by super-high-frequency radio waves. Both are designed so they can be used for Television as well as Long Distance calls.

And research on new electronic devices, now under way in Bell Telephone Laboratories, brings still wider horizons of electrical communication within view.

It's all a part of progress and our constant effort to make telephone service better and more useful for every telephone user.

BELL TELEPHONE SYSTEM

Our Municipal Notebook

Federal Help Asked For Local Civil Defense

POINTING out that municipalities will have grave responsibilities in the event of future war, Mayor George W. Welsh of Grand Rapids, President of the United States Conference of Mayors, has urged that the Federal Government provide assistance on civil-defense and disaster-relief problems. He testified before the Senate Committee on Armed Services on April 3 in support of passage of universal military training legislation.

Whatever the final and agreed form of organization for civil defense [he said], the basic essential item must be trained manpower to carry out the wide range of tasks that will be necessary if any city is to rise and reassert its collective life after atomic or other attack. We know today what these jobs are: firefighting, restoration of utilities, prevention of panic, care of casualties, evacuation of population from badly shattered areas, feeding and billeting, prevention of sabotage and looting.

Mayor Welsh said that all this was clearly recognized in the Compton Report, in which training for the mission of disaster relief was regarded as the most important function to be served by universal military training. He continued:

While it is true that the civil defense setup in a city should be of and by the civilian administration of that city, this does not mean that we must forego any advantage that can be had from the military establishment in training, in planning, or in coordination. . . .

The Federal Government must provide guidance and coordination in training, organization, and equipment, must maintain mobile reserves and must be prepared to assume control in disaster beyond the capacity of the local levels.

1947 Boom Year For Population Growth

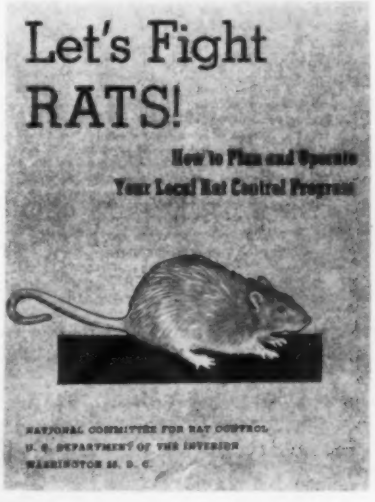
THE greatest annual increase in population ever to occur in the United States took place during 1947, according to estimates recently released by the Bureau of the Census, Department of Commerce.* The increase during the year amounted to approximately 2,667,000 persons, and exceeded the previous record increase of 1946 by approximately 400,000. The total population of the United States, including persons in the armed forces overseas, was estimated to be 145,340,000 on January 1, 1948.

The great size of the population increase during 1947 was largely the result of the rise in the number of births during the year. Live births numbered approximately 3,908,000, a record never equaled in this country in the past. The continuation of the death rate at a low level and a net immigration of about 215,000 persons also contributed to the great population growth.

Campaign Organized For Rat Control

MAYORS' committees on rat control in 32 demonstration cities will mobilize community action to spur a popular offensive against the hordes of urban rats which destroy two billion dollars' worth of materials and foodstuffs each year. A National Committee for Rat Control, under the chairmanship of H. M. Warren, vice-president of the National Carbon Company, has been appointed by J. A. Krug, Secretary of the Interior, to coordinate the drive.

The importance of such a concerted program is pointed up by the amount of damage caused by rats to both health and property. Rats destroy or contaminate more than 200 million bushels of grain every year — almost half the amount the U. S. plans to send Europe in 1948. Rats are carriers of many dread human diseases, including bubonic plague, typhus fever, spirochetal jaundice, trichinosis, and rabies.


Let's Fight
RATS!
How to Plan and Operate
Your Local Rat Control Program
NATIONAL COMMITTEE FOR RAT CONTROL
U. S. DEPARTMENT OF THE INTERIOR
WASHINGTON 25, D. C.

The problem of rat control is complicated by the fact that they breed more prolifically than rabbits and are now almost as numerous as the entire human population. One pair of rats could account for over 350,000,000 progeny in three years under favorable conditions.

Rats can be destroyed not only by aggressive measures such as poisoning and trapping, but by preventative measures. Citizens will be asked to eliminate shelter for rats by ratproofing all buildings; to dispose of garbage, trash, and other waste on which rats can feed; and to protect natural enemies of the rat when they are not themselves destructive.

It is pointed out that city ordinances requiring rat control on a block-by-block basis have a distinct advantage. Each block can thus be more readily cleaned up and maintained in a relatively rat-free condition, as rats hesitate to cross paved street. A municipal rat-control unit under the jurisdiction of the health department is recommended to undertake the continuous job of rat-killing. Its first job would be eliminating rat infestation on all public property, as well as inspecting buildings, advising property owners, and enforcing ordinances.

A complete kit of materials on planning and operating local rat-control programs, including posters, pamphlets, names and addresses of rat-control experts, a bibliography, etc., is available upon request to the National Committee for Rat Control, U. S. Department of the Interior, Washington 25, D. C.

All-Out Anti-Fly Campaign June 1

AN ALL-OUT national campaign for a fly-free America has been announced by the United States Junior Chamber of Commerce. The nation-wide campaign is an expansion of the anti-fly "wars" that have been staged in scores of local communities over the country during the past two years and on a state-wide scale last year in Iowa and Idaho. The success of these campaigns, which have employed the wartime developed insecticide DDT, has

* See "Population Estimates," Current Population Reports, Series P-25, No. 7, March 10, 1948. Available from Bureau of the Census, Department of Commerce, Washington 25, D. C.

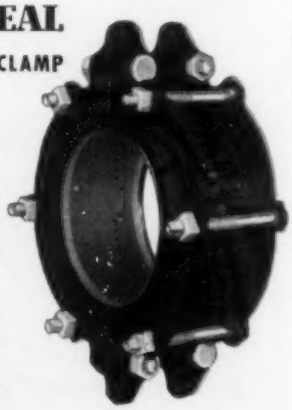
THE BELL AND SPIGOT CLAMP WITH THE SEALED GASKET

SKINNER-SEAL Bell Joint Clamps stop bell and spigot joint leaks under pressure. Speedy one-man installation cuts repair costs.

Gasket is completely SEALED and protected; at the bell face by a Monel Metal Seal Band; at the spigot by hard, vulcanized gasket tip, acting as a plug. Equalized pressure forces gasket into every crevice in the joint, sealing the leak at its source. Sturdy malleable iron Compression and Anchor Rings — shaped and pressure-tested before shipping. Large ¾" high-tensile steel bolts, cadmium plated.

SKINNER-SEAL
SPLIT COUPLING CLAMP

For repairing broken cast iron mains. Gasket SEALED by Monel Metal Band at top, by hard vulcanized tip at sides, by Brass Band at break itself.



FOR REPAIRING BROKEN CAST IRON MAINS

M. B. SKINNER CO., SOUTH BEND 21, IND.

SKINNER-SEAL BELL JOINT CLAMP

motivated the Junior Chamber to launch its own DDT blitz through its 1,700 local organizations and all its state groups.

Private citizens and governmental units will be urged to pool their resources and efforts toward total annihilation of flies. Dr. Keith Stratford, Public Health Chairman of the U. S. J. C. C., has said that the campaign is being undertaken for the purposes of contributing to national public health and wellbeing and helping to increase the nation's food supply. Flies are suspected of being polio carriers and are known to carry 20 other diseases. From the standpoint of helping swell the nation's larder, it has been proven that DDT fly and insect control on cattle increases beef yield as much as 50 pounds per animal per season and boosts milk production as much as 20%.

The offensive against flies will get under way June 1 and will continue through the warm summer months. Where anti-fly campaigns already have been established locally, the Junior Chamber organizations are being asked to lend their complete support to these drives. Elsewhere, local chapters will initiate and conduct the drives, enlisting the support of the entire citizenry.

"Fly control experts have predicted that the fly and mosquito problem, which now costs the United States well over $165,000,000 a year, can be virtually eliminated within the next decade," Dr. Stratford commented. "We believe that the national campaign this year will be a big step in that direction. This is the type of program which requires very little individual effort, but the sum total of such support and cooperation will be a great benefit for all."

Further information about the campaign may be obtained from the United States Junior Chamber of Commerce, LaSalle Hotel, Chicago 2, Ill.

Television Helps Smooth Milwaukee Voting

TELEVISION was used to get out the vote and to smooth out voting procedure in Milwaukee before the April 6 elections in that city, which involved national, state, county, and municipal issues or candidates. The Election Commission put on a full-dress voting demonstration over WTMJ-TV by setting up a model polling place, complete with booths and ballot boxes, at the *Milwaukee Journal* television studio on the Friday night before the election.

"Mr. Average Citizen" was put through the entire election routine and given plenty of opportunity to ask questions of the election commissioners. The television demonstration climaxed a series of special techniques used by the commission and the "Be American—Vote Committee," a citizen group organized to encourage a large turnout and proper voting procedures. The election commissioners appeared on three radio shows. Spot announcements over local radio stations, streetcar and bus placards, window signs and public speakers were employed in an effort to top previous registration and voting records.

Civic Theaters With Public Funds Authorized in Britain

UNDER a clause recently added to the Local Government Bill, British local authorities can provide their own theaters and concert halls through an increase in taxing powers. An article by Basil Dean on "Running the Civic Theatre" appears in the March-April issue of *Citizen, the Journal of Civic Affairs.**

Pointing out that the administration and artistic control of these civic theatres will present many knotty problems, Mr. Dean urges careful thought in the formulation of policies for such ventures. He comments:

> Having decided upon the type of theater they want and having taken great care to explain to all their citizens what they will gain by this new enterprise, the community will next have to settle the extent to which the director of their new theater shall be given his head. If he is to be at the beck and call of a number of municipal councillors who fancy themselves as the Laurence Oliviers or Edith Evanses of the local borough he will not get very far, nor, I think, would he stay very long!

Urging the avoidance of excessive local control, Mr. Dean suggests that civic-theater companies could reduce operation expenses by exchanging performances with other cities. He advises also that expert theatrical opinions be sought in the design and erection of the theaters.

* Published at 11 Bolt Court, Fleet Street, London, E. C. 4.

Factories Sprout in New Areas Since War's End

HOUSTON, Texas, is the center of the fastest-growing industrial area in the nation, according to reports cited by the Association of State Planning and Development Agencies.* In the past two years, some $80 million has been invested in new plants in the Houston area, compared to $69 million in the New York metropolitan area.

The comparison is sharpened by considering the figures on a per-capita basis. Since the war, $106 has been invested in industry in the Houston area for every person living there. Per-capita industrial investment for new facilities in the New York area has been only $5.40. In the Los Angeles area, per-capita industrial investment since the war has been $14.

Of all major industrial expansion projects undertaken since 1945, 46% are in the cities with a population under 50,000. The Association reports, "The number of industrial expansions in cities under 50,000 is greater than the number in all cities over 100,000 put together." In Tennessee, 30.6% of the new industries started or completed in 1947 were in cities of less than 5,000 population.

* The Association's address is 1313 East 60th St., Chicago 37, Ill.

Top Appointments Completed in Housing and Home Finance Agency

TOP appointments in the Housing and Home Finance Agency, established last July as the Federal Government's over-all permanent housing agency, have been completed. Temporary appointments were made by the President at the time the Agency was set up, pending reconvening of the Congress. The Senate recently confirmed appointments for Commissioner of the Public Housing Administration and a vacancy on the Home Loan Bank Board.

The Agency's principal officials now are:

Raymond M. Foley, Administrator, Housing and Home Finance Agency

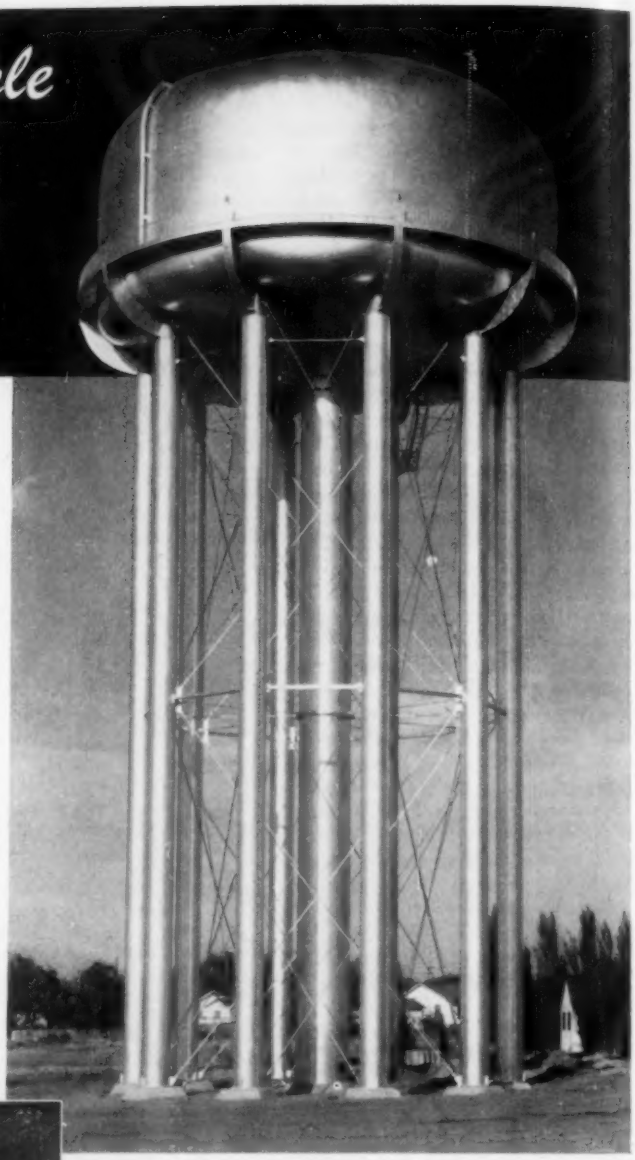
William K. Divers, Chairman, Home Loan Bank Board, and J. Alston Adams and O. K. LaRoque, Members of the Board

Franklin D. Richards, Commissioner, Federal Housing Administration

John T. Egan, Commissioner, Public Housing Administration

In the Office of the Administrator, Berchmans T. Fitzpatrick has been appointed Assistant Administrator (Program) for HHFA, and also continues to serve as General Counsel for the Agency. Adolph H. Zwerner, Associate General Counsel of HHFA, will be Director of the Division of Law, and Joseph H. Orendorff has been designated to have charge of Lanham Act (war and veterans' re-use housing) activities for the Office of the Administrator.

Another Example OF EFFICIENT *DISTRIBUTED STORAGE....*



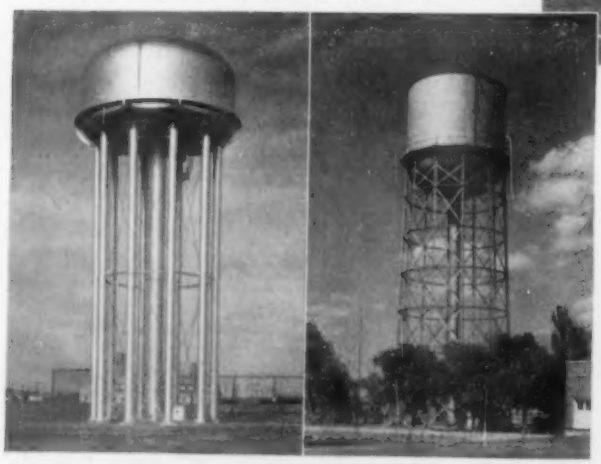
at Amarillo, Texas

Each of the three Horton tanks illustrated on this page forms an efficient link in the well-planned distributed-storage program for Amarillo's water works system. Here, as in so many other municipalities, it has been proved advantageous to install several large-capacity elevated tanks at different locations. When this is done, each tank is usually located near the center of an area of heavy demand, where it will provide sufficient capacity to supply the peak loads in that area.

In addition to providing efficient gravity pressure to meet peak demands, elevated water tanks in water systems provide other benefits such as a reserve of water for better fire protection and provision for pumping during off-peak periods.

BELOW, LEFT: First 1,000,000-gal. Horton radial-cone elevated tank in Amarillo. It has a 35-ft. range in head and is 113 ft. to bottom.

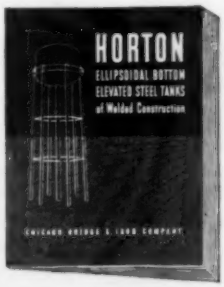
RIGHT: First Horton elevated tank, installed at Amarillo in 1927,—a 500,000-gal. unit, 105 ft. to bottom.



ABOVE: The most recent Horton elevated tank installation in the Amarillo water distribution system is this one-million-gallon, radial-cone-bottom unit. It is 129 ft. to bottom and has a 35-ft. range in head.

SEND FOR THIS NEW BULLETIN . . .

Just off the press. Contains factual data covering the use of Horton elevated water storage tanks for municipal service. Address our nearest office for your copy of this bulletin.



CHICAGO BRIDGE & IRON COMPANY

Birmingham 1.....1502 North Fiftieth Street
Houston 2.....2101 National Standard Bldg.
Tulsa 3.....1625 Hunt Bldg.
New York 6.....3309—165 Broadway Bldg.
Cleveland 15.....2236 Guildhall Bldg.
Los Angeles 14.....1403 Wm. Fox Bldg.
Chicago 4.....2127 McCormick Bldg.
San Francisco 11.....1233-22 Battery Street Bldg.
Philadelphia 3.....1616-1700 Walnut Street Bldg.
Atlanta 3.....2114 Healey Bldg.
Havana.....402 Abreu Bldg.
Detroit 26.....1501 Lafayette Bldg.

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PENNSYLVANIA

Water Supply and Treatment

Bangor Investigates Groundwater Possibilities

AN 8-to-10-million-gallon-per-day supply can be developed for Bangor, Maine, from an aquifer adjoining and recharged by the Penobscot River. This was disclosed in a report by the Ranney Water Collector Corporation of New York to the Bangor Water Department recently. The present water supply draws from the same river, and treats the water in a filter plant. Its capacity of 4 to 5 mgd is being taxed by the city's demand for water.

The report contemplates either three or four radial collectors in the water bearing stratum, and indicates that the water will be uniform in quality and temperature, be free from turbidity and objectionable tastes and odors, and will approach the chemical character of the river water.

North Carolina Operators' School

THE Institute of Government, Chapel Hill, N. C., is operating its annual water-works-operators' school, which will be conducted from June 7 to 11. The school will be conducted in cooperation with the School of Public Health of the University of North Caroline, according to Clifford Pace, Assistant Director for the Institute of Government.

The school will be divided to fit the needs of four different classes of operators, ranging from those handling elementary problems in simple plants to those needing advanced studies of current water-supply problems.

Cecil K. Calvert Dies

Cecil K. Calvert, Superintendent of Purification of the Indianapolis Water Co., passed away April 19 after a brief illness.

After Mr. Calvert's graduation from college his first important position was with the Indianapolis Water Company as a chemist. He continued to work for this company until 1921 when he became a chemist Director of Experimental Work with the Indianapolis Sanitation District. In 1924 he became Superintendent of Sanitation and in 1932 his duties were increased to include supervision of garbage reduction. He remained in this work until 1936, when he returned to the water company as Superintendent of Purification, the position he held until his death.

Mr. Calvert was nationally known in the water-purification field. He was a member of the Sanitary Engineering Advisory Board of Purdue University, of the Indiana Stream Pollution Board, and of many technical societies. He had contributed numerous articles to the various technical journals on water supply and sewage treatment.

Glad To Pay It

IT IS always pleasing to know that your work is appreciated—doubly so when the expressions of pleasure are unsolicited. Director W. A. Glass of Miami's Board of Water and Sewers had just such reason to appreciate the letter that arrived on his desk early in April. This letter came from N. J. Henkle, 851 N. E. 88th St., Miami, Fla., and accompanied his water bill. The letter read:

"This is the only bill I actually look forward to getting and paying with pleasure.

"The best things in life are free, or darn near it, and if anybody thinks an abundant supply of clean, safe water isn't one of the top best things in life, let him try living without it.

"With water rates as a yardstick, imagine all other things billed in proportion to their importance or necessity. Why, the poorest of us could live like kings! My $3.75 is given with the greatest of pleasure, praise, and thanks."

New Dam to Reinforce Clarksburg Supply

A NEW $14-million multiple-purpose dam will be constructed on the West Fork River near Weston, W. Va., that will mean an adequate and improved water supply for Clarksburg and other near-by West Virginia cities. The dam will provide flood protection to the area. It is to be constructed as an army engineer project, and will consist of an earth-fill that will impound drainage from 102 square miles. It will create a lake covering 5,000 acres.

This dam is a project that has been under study by Scotland G. Highland, General Manager of the Clarksburg Water Board since 1913. In the early years he was unable to interest the army engineers. In 1933, however, he aroused more interest because of the engineers' increased attention to this subject.

In reporting this project, Major General D. L. Weart, Division Engineer of the Ohio River Division, states that flood-control flow regulations will provide substantial pollution-abatement benefits, and partial control of acid pollution as well as an assurance of water supply for communities now dependent upon the West Fork River.

Hurricane-Proof

Although a recent hurricane caused plenty of trouble in Bunker Hill, Ill., it was not able to damage the town's 60,000-gallon elevated storage tank. The tank, built in 1936 by the Chicago Bridge & Iron Co., has an ellipsoidal bottom structure. Base is 69 feet from the ground.

WHY CITIES PREFER

Replaced after 52 years service — Without repair during that period.

The service record of Box 14 is not an isolated instance; it is but one of many. Gamewell Fire Alarm Systems have demonstrated their durability and efficiency for nearly a century — which explains the universal preference for them. Expenditures for adequate fire alarm box distribution should be regarded not as expenses but as sound investments in public safety.

Obsolescence due to the production of later models of greater efficiency — not deterioration — is the principal cause of retirement from service of Gamewell boxes.

THE CUMBERLAND NEWS, CUMBERLAND, MD., TUESDAY, MARCH 2, 1948

Fire Alarm Box 14 Gets Honorable Discharge After 51 Years' Service

Original System Was Installed In 1896

Fire Alarm Box No. 14, which has stood on guard at the corner of Washington and Allegany Streets for more than half a century, received an honorable discharge yesterday.

Fire Chief Reid C. Hoenicka said that No. 14 was the last of the 12 original fire alarm boxes which were placed in operation here on October 27, 1896.

Chief Hoenicka, assisted by Edgar P. Lible, maintenance electrician, and Walter Jenkins, general maintenance man, yesterday replaced the faithful alarm box with a modern mechanism similar to those used in the other 74 alarm boxes of this city.

Firemen said that No. 14 has never been repaired during its long service.

In the 40 Years Ago column of the September 22, 1936, paper appeared the following:

"The Gamewell Electric Fire Alarm and Telegraph Company, New York, accepted the contract for the erection of its system in Cumberland, as modified by the City Council and was to commence work at once."

THE MODERN BOX
THREE-FOLD TYPE

THE GAMEWELL COMPANY

NEWTON UPPER FALLS 64, MASSACHUSETTS

In Canada: Northern Electric Company, Ltd., Montreal

Public Safety

Flint's Traffic Officers Are No Longer Tenpins

By JAMES T. BYARS
Chief of Police
Flint, Mich.

DURING 1947, one of our night-traffic officers was killed and two seriously injured while directing traffic at intersections. We had felt that by providing our traffic officers with luminescent Sam Brown belts and red traffic torches we were giving our men ample protection; but other night-traffic officers wearing these belts reported innumerable close escapes from injury by drivers who failed to see them standing in the center of the street.

Captain Herman Crites, Director of the Traffic Division, who was assigned to discover the cause of these accidents and to remedy the situation, took the matter in hand personally. The following is a portion of his report:

My assistant and I observed the night-traffic officers directing traffic in the downtown area. When the headlights reflect against the luminescent belt, the officer as he halts traffic is in clear view; but, when he pivots and stands sidewise to the approaching traffic, he is no longer visible. The belt cannot be seen clearly from all directions. When the officer turns and drops his arms to a normal position at his sides, the small portion of the reflectorized belt extending around his waist is completely covered. His red traffic torch, which blends in with the background of the stores' red neon lights, is ineffective. The only solution is a belt which will be conspicuous from all directions.

This suggestion was quickly put into effect. Using a roll of 4-inch Scotchlite tape as a reflecting agent, our police tailor made a reflectorized belt for each night-traffic officer, using the full 4-inch width around the body and the 4-inch width over both shoulders. Salvaged pieces of heavy uniforms were used as backing material, and fasteners were made from discarded police uniform buttons. Four-inch cuffs were also made from the tape, and each traffic officer was issued white gloves. To define the night-traffic officers more clearly, I had the engineering department construct for each officer a wooden box, 20 inches square and 10 inches high. The four sides of the box were covered with 8-inch Scotchlite material generally used in the construction of stop-signs. Tests indicate that the boxes are as noticeable as a reflectorized sign to the approaching driver.

This night-traffic officer in Flint, Mich., can be seen clearly for three blocks on account of his luminescent belt, gauntlets, and pedestal.

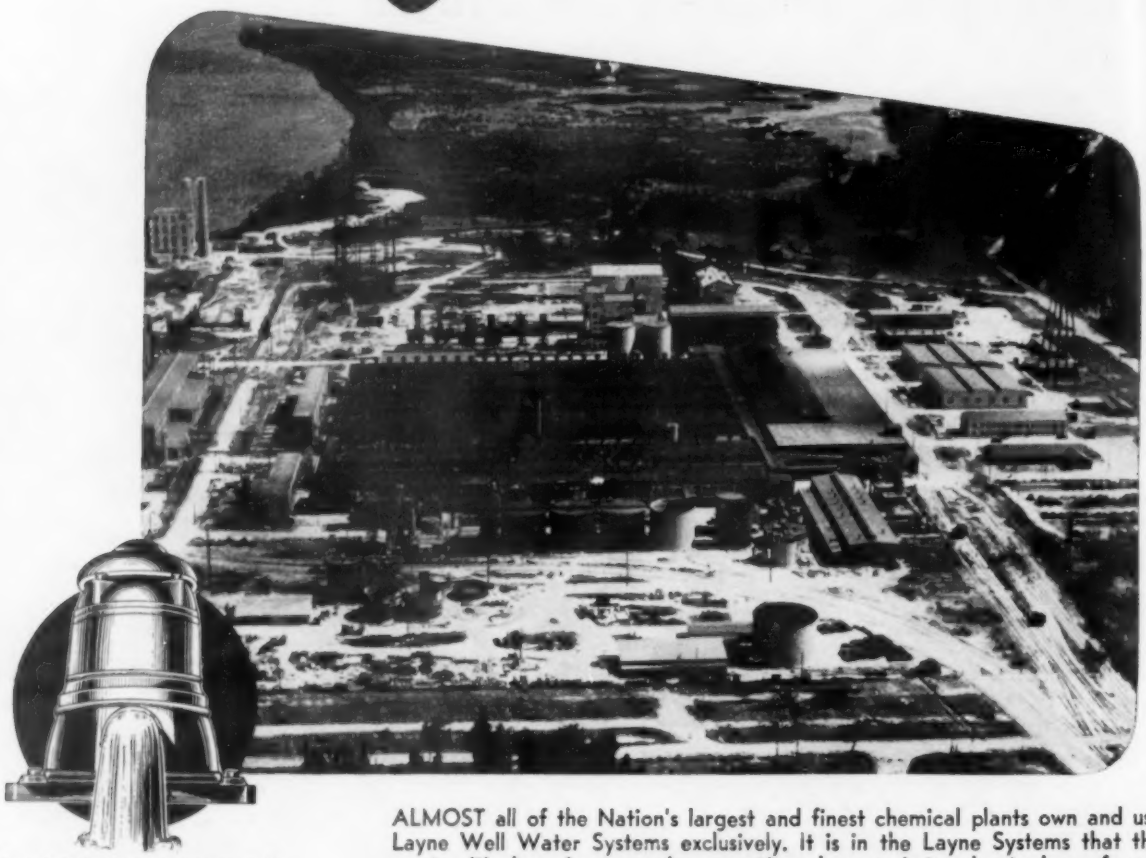
The night-traffic officer can be seen by the approaching motorist for a distance of three blocks. No more reports have been received of officers having to dodge cars. A check made during a heavy snowfall clearly indicated that motorists are now giving the traffic officers plenty of clearance. Two red lanterns beside each of the reflectorized boxes further define the traffic post in the center of the intersection. Traffic officers can now devote their full time to directing traffic instead of spending half their time dodging cars.

Editorials in our local papers have commended the action taken by the Police Department, and letters from our citizens and commercial fleet operators have been outspoken in their praise of the manner in which night-traffic officers have been made conspicuous.

A further proof of our success has been our 1947 Christmas-season accident rate as compared with that of 1946. In 1946, four pedestrians were killed and several persons injured during the Christmas season, whereas the 1947 holiday season saw no fatal accidents and only two injuries, both of which occurred at intersections not supervised by traffic officers. By clearly illuminating our night-traffic officers, we have made Flint's citizens more conscious of traffic rules and regulations.

There are 29 states in the Union in which the driver and occupants of motor vehicles may legally obtain intoxicants from the same establishments that sell them gasoline. The information is from a nation-wide survey by the American Automobile Association.

WATER SYSTEMS FOR THE LARGEST *Chemical* PLANTS

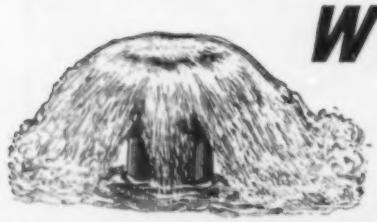


*The installation of Layne well water systems includes thousands of cities, factories, petroleum producers and refineries, chemical plants, railroads, paper mills, office buildings, theatres, butter, cheese and milk plants, irrigation projects —and numerous other situations that demand large quantities of water at the very lowest cost.

ALMOST all of the Nation's largest and finest chemical plants own and use Layne Well Water Systems exclusively. It is in the Layne Systems that the most critical engineers and operational superintendents have found: 1.—definitely outstanding efficiency; 2.—extraordinarily fine and long lasting quality, and 3.—dependability in years and years of constant peak load operation.

But chemical plants are not alone in such preference. Check the hundreds of cities, railroads, packing houses, tire manufacturers, steel mills, petroleum refineries, army camps, naval stations, big air conditioning and irrigation projects—in fact almost every big well water user in the United States, Canada and Mexico. There too, you will find almost exclusive use of the world famous Layne Well Water Systems. Such uncontested leadership is ample proof of superiority. For literature, address Layne & Bowler, Inc., General Offices, Memphis 8, Tennessee.

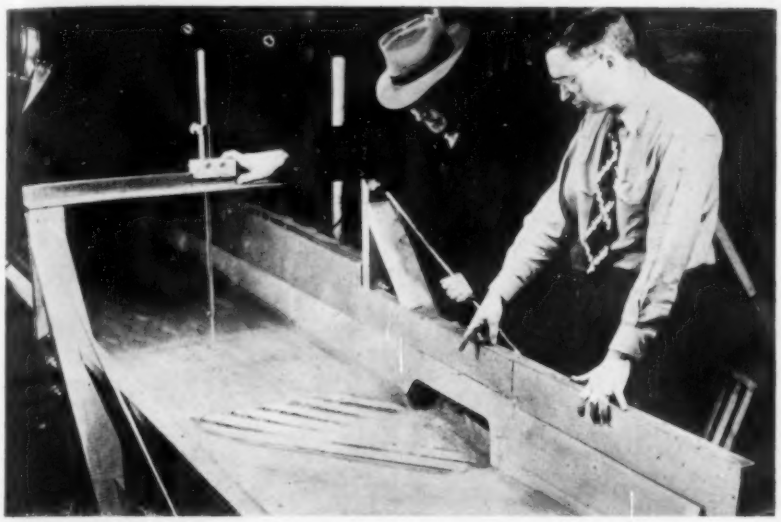
LAYNE WELL WATER SYSTEMS



AFFILIATED COMPANIES—Layne-Arkansas Co., Stuttgart, Ark. ★ Layne-Atlantic Co., Norfolk, Va. ★ Layne-Central Co., Memphis, Tenn. ★ Layne-Northern Co., Mishawaka, Ind. ★ Layne-Louisiana Co., Lake Charles, La. ★ Louisiana Well Co., Monroe, La. Layne-New York Co., New York City ★ Layne-Northwest Co., Milwaukee, Wis. ★ Layne-Ohio Co., Columbus, Ohio ★ Layne-Pacific, Inc., Seattle, Wash. ★ Layne-Texas Co., Houston, Texas ★ Layne-Western Co., Kansas City ★ Layne Minnesota Co., Minneapolis, Minn. ★ International Water Supply, Ltd., London, Ontario, Canada ★ Layne-Hispano Americana, S. A., Mexico, D. F.

Street Construction & Maintenance

A Self-Cleaning Street Drain



Curtis L. Larson, University of Minnesota, describes the new inlet to A. W. Verharen, Hydraulic Engineer of the Minnesota Department of Highways.

A NEW self-cleaning street drain has been developed from the laboratories of the University of Minnesota. This drain has a grating with a capacity 75% to 100% greater than the present standard inlet. Experiments resulting in its development were conducted in cooperation with the Minnesota Department of Highways under the general supervision of Dr. Lorenz G. Straub, Director of the Laboratory. Project leader was Curtis L. Larson, Hydraulic Research Fellow.

In the new inlet design the grate bars are mounted in the frame at a 45° angle to the line of drainage flow, and each bar is specially rounded and backsloped on a smooth curve. Because the bars are set diagonally to the line of flow, debris tends to move along the bars to the drainage opening in the curb, a factor that makes the inlet virtually self-cleaning.

The University's laboratory utilized a model section of roadway gutter 25 feet long, constructed full-scale and installed in a 50-foot channel in the laboratory. A number of standard and experimental inlets were mounted one by one in the lower end of this test gutter. The tests indicated the ability of each inlet to pass such debris as leaves, grass, paper. The characteristic was determined by adding a measured amount of leaves to the gutter flow, and counting those which lodged on the grate bars of each of the drain designs tested.

Bring Pavement Design Up-to-Date

MR. McCORKLE'S analysis of concrete pavement design (see page 102) presents observations that progressive engineers all recognize. If they accept the accuracy of these research findings, they will take them out of the laboratory and put them into actual field practice. Let us look at some of them:

1. *The name contraction joints is a misnomer.*

The pavement, explains Mr. McCorkle, requires these joints primarily because of warping stresses rather than contraction movement. The concrete normally wants to crack at 15- to 20-foot intervals in unreinforced concrete.

2. *In most cases pavement does not need expansion joints.*

Mr. McCorkle's analysis discloses that pavement is as long as it is going to be when poured and still plastic, unless poured in near-freezing weather.

Only one research study reports lengthening of concrete, and that about one part in 10,000 over a period of four years. This lengthening took place after initial hardening and probably was offset to an extent by the shortening that took place at the time of setting. Furthermore, the test slab was entirely unrestrained and not subject to compression during the summer.

Some slabs have a tendency to increase in length because of abnormal characteristics of the materials, cement, or aggregate. However, most authorities agree that where abnormal expansion characteristics exist, the trouble is not apt to be solved by the use of more expansion joints.

3. *If the design uses weakened plane joints at relatively short intervals, no load-transfer dowels are required.*

The irregularities of the fracture will be sufficient to transfer the load, if the joint does not work into too wide an opening.

4. *If the pavement is placed in near-freezing weather it should employ the use of expansion joints, probably at some conventional rate such as* ¾ *to* 1 *inch of mastic per* 100 *feet of slab.*

In this event, both the expansion and contraction joints should be supplied with dowel bars because the individual sections probably will creep far enough apart to destroy the value of the aggregate interlock.

5. *At the unrestrained ends of slabs, probably the last* 500 *feet end should have load-transfer dowels.*

This will occur at the end of a project or at the approaches to bridge abutments where the designers leave room for possible slab elongation to prevent lateral stress in the abutment. One can normally expect that the slab sections near the unrestrained ends will work apart far enough to prevent aggregate interlock to transfer the load at the joints. Probably in 500 feet, however, this separation will be minimized to the extent that the aggregate interlock will again work.

We make this suggestion ourselves. However, some engineers feel that this distance can be reduced to 200 to 300 feet.

These conclusions seem logical on the basis of present substantiated technical research. They seem like natural developments in the field of concrete-pavement construction that not only will minimize maintenance but also will give a smoother, easier riding surface. Expansion joints always have been annoying to motorists.

The important point will be to see how quickly or completely such standards are accepted in specifications.

SANITARY FILL MAKES PICNIC GROUNDS

FOR JACKSON, MISSISSIPPI

BUILT BY THE DROTT BULLCLAM SHOVEL METHOD

Several refuse disposal problems were licked by officials of Jackson, Mississippi, by constructing a sanitary fill with the Drott Bullclam Shovel.

1. They converted an unattractive waste area into an attractive, useful addition to their city park picnic grounds.

2. They closed their open dump — rid the community of this annoying "eye-sore" and menace to health.

3. They saved money. A sanitary fill is also the most economical method of refuse disposal. Means only a single investment! One machine — the Drott Bullclam Shovel — handles all operations . . . digs the trenches, compacts and covers the refuse. And the fill can be constructed anywhere . . . thus keep hauling cost down.

Whatever your refuse disposal problem . . . it will pay you to investigate the Drott Bullclam Shovel Method of Sanitary Fill. Write for full information.

Top: Section of new, clean picnic site at Jackson, Miss. — built entirely from refuse the Drott Bullclam Shovel way.

Center: Bulldozing and compacting the refuse.

Bottom: Covering refuse — dirt is obtained from trench built for depositing refuse.

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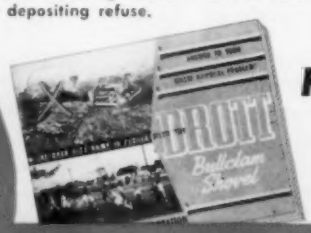

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Street Cleaning and Refuse Disposal

A Bubble Bath for the Streets

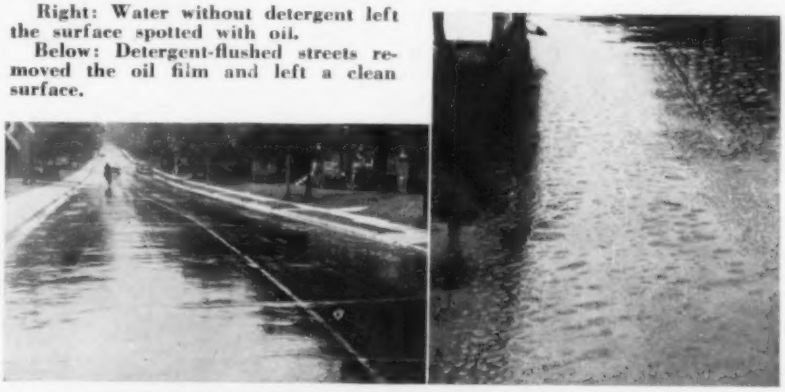
LAST September, H. D. Bradley, Street Commissioner of Toronto, decided to look into the use of a synthetic detergent in the street-flushing program. To implement the investigation, he decided to use the organic detergent, Nacconol, a product of the National Analine Division, Allied Chemical and Dye Corporation, New York. The possibilities looked so interesting that Dr. O. M. Morgan of that organization went to Toronto to help.

The concentration selected was 2½ pounds per 1,000 gallons of water, which normally would flush a half-mile of streets. It is the practice to drop the detergent into the tank, and then add the water. The natural swirling action dissolves it quickly.

The difference in action on the street was noticeable. Whereas, the water alone ran off in spotty designs because of the oil on the street, the detergent in the water, with its powerful wetting quality, loosened the oil and washed it away. The improved braking action that cars experience on detergent-flushed streets was pronounced.

Right: Water without detergent left the surface spotted with oil.

Below: Detergent-flushed streets removed the oil film and left a clean surface.



Suds always are associated with good washing, and the effect of the detergent flushing promotes public confidence in the cleanliness of streets.

Springfield's White Fleet Of Good Sanitation

THE promotion of prompt and sanitary refuse collection received a big boost in Springfield, Ill., when this city received its fleet of nine new 13-yard Leach Refuse-Getter refuse trucks.

The new trucks replaced an old open-body type requiring that the refuse be loaded at shoulder height. Commissioner Frank Hoke Lock reports that the new trucks allow the use of one less man per truck. The low bucket loading makes the work easier, and the hydraulic loading operation makes the work fast and efficient.

Commissioner Frank Lock, left, and Superintendent Joe Burge before Springfield's new fleet of refuse-collection trucks.

Youngstown Promotes Salvage

EVERYTHING of value will be salvaged from the Youngstown, Ohio, refuse, according to a new collection and disposal program. The work is expected to help lift the cost of the refuse disposal and will result in closing present city dumps.

According to Commissioner of Engineering James C. Ryan, Youngstown is now receiving bids for the disposal of rubbish within the city. Under this plan, the refuse will be collected by private collectors and delivered for disposal to the salvage plant of the successful bidder.

The operation is not expected to be self-supporting. Some subsidy is expected by the city, although an overall savings is anticipated.

Steel Hard to Get?

Demand Still Exceeds Supply But . . .

. . . this is a typical view of night loading operations at a Ryerson steel-service plant. The steels specified on several orders are on their way to a loading platform for delivery the following morning. Possibly none of these orders are completely filled—however, the fact remains, we are doing our very best to serve a large group of steel users.

Unfortunately, it often seems that the particular steel *you* want is never on hand, and it is true that we are always short of some kinds and sizes. But our stocks turn over fast. A size that is out today may be in tomorrow. And in spite of current conditions, we still believe the over-all stocks at our thirteen plants are the nation's largest.

Carbon and alloy steels, hot rolled or cold finished, and stainless steel in practically every analysis and finish are in stock, ready for your call. So do not hesitate to get in touch with us —on any requirement. You'll find that every Ryerson steel man will do everything possible to help you get the steel you need, when you need it.

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RYERSON STEEL

Sewerage and Sewage Treatment

Linden-Roselle, N. J., Form Sewerage Authority

THE City of Linden and the Borough of Roselle, N. J., acting on the recommendation of their engineers, have formed a sewerage authority to administer and finance a quarter-million-dollar pollution-abatement project.

The new authority consists of four appointed members, three from Linden and one from Roselle. The Linden members include Herbert D. Banta, Charles H. Gross, and Edward Mrosek. Roselle's representative is Frank Hudson, a consulting engineer with much experience in sanitary engineering work. Mr. Hudson has been named chairman of the authority.

The authority will serve a population of about 50,000. The area is highly industrialized. Industries already using the two communities' sewer system contribute about 3 mgd of sewage with a strength equivalent to a population of 235,000 people. Those not served by the present sewers contribute a waste volume of 39 mgd, with a strength equivalent to a population of nearly 150,000.

The authority is studying methods of financing based on some sort of revenue arrangement by billing each community separately. The charges will probably be based on volume and strength of sewage contributed. The use of this arrangement was expedited by legislation recently passed in New Jersey which aimed at overcoming the debt burden that the usual general-obligation bonds create.

Designs and specifications for the construction of sewage-treatment works to be operated by the authority are now being completed by Alexander Potter Associates, New York City. It is the same firm that made recommendations to create the authority.

San Diego Doubles Plant Size

SAN DIEGO is now putting its sewage-treatment-plant improvement program on a construction basis, according to Neal D. Smith, Assistant City Manager. The present plant, constructed in 1942, is no longer able to care for the existing population of over 365,000, or more than double the figure that was in effect when the plant was built.

The new plant will utilize most of the structures of the old, some in new capacities. Sewage will be pumped by gas engines operating on digester gas; it will then be pre-aerated for odor control, and clarified for disposal in San Diego Bay through the existing outfall. The plant will dispose of the sludge by separate digestion and flash drying for the production of fertilizer. It will have a capacity of 40 mgd average and 70 mgd maximum.

In the new construction will be two 180-foot clarifiers with 30-foot aeration tanks around the clarifiers; three 10-foot-diameter digesters; elutriation tanks; a main building to house pumps, engines, blowers, filters, sludge-drying equipment, and an administration building.

The city has purchased those items of equipment and material involving long delivery schedules, and will furnish them to the contractor.

Sewage Works School Opens This Summer

DURING the week of June 7 to 11, 1948, short courses for 100 operators and superintendents of treatment plants for sewage and industrial waste will be held at the Pennsylvania State College. Certificates will be awarded after completion of two courses, one for untrained operating personnel and one for experienced operators.

For further information, write to the Department of Sanitary Engineering, Pennsylvania State College, State College, Pa.

Zanesville, Ohio, Builds An 84-Inch Interceptor

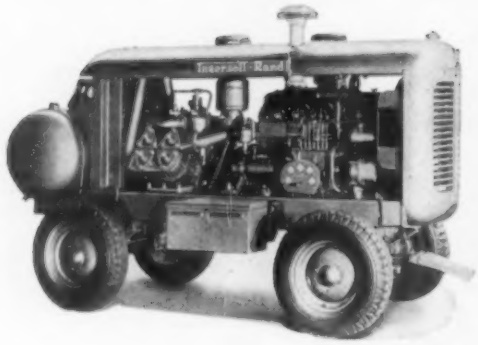
THE big Slago Run sewer project in Zanesville, Ohio, gets a little closer to completion as 5-foot sections of 84-inch concrete pipe are gradually fitted together, some being threaded through an old brick-lined sewer.

The pipe sections weigh 2,300 pounds each and are manufactured by the Universal Concrete Pipe Co., Columbus, Ohio. Adams Brothers Contracting Company, of Zanesville, is handling the project.

Workmen prepare subgrade for the next pipe section.

Here is the section being eased into place.

GET FULL PRESSURE AT THE AIR TOOL



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Volume XLIII Number 5
MAY 1948
The American City

Norfolk's Incineration Standards

Norfolk, Va., builds a new 400-ton incinerator for $790 per ton and operates it at a cost of 42 cents per ton with only a six-man crew

TODAY a new incinerator serves Norfolk, Va. It is a plant designed to meet a 400-ton-per-day specification, but on actual test it has shown the ability to meet with consistency a 35% overload. As the plant is operated today, at nearly 30% under capacity, it is burning refuse at a labor cost of only 0.34 man-hours per ton. It is doing this without the nuisance of odor or smoke —two important considerations, since the plant is only about three blocks from a residential area, and only a short distance from Norfolk's famous William and Mary University stadium.

This addition to the city's incineration facilities is a Nye four-furnace incinerator of the circular steel-jacketed type, the second plant of this type to be built in the city. It was completed late in 1946 at a cost of $316,000, or $790 per ton of rated specified capacity. Tested capacity shows it able to handle 540 tons per day. On this basis its cost per ton drops to $585. Today's cost for doing the same job would undoubtedly be somewhat higher than this.

Why It Was Needed

The new incinerator represents an aftermath of the part Norfolk played in the recent war. The part that it played in World War II is evidenced by the expansion in population that took place. During this period the population of Norfolk increased from 125,000 to over 300,000, all of which took part in the production and training machinery that helped make victory possible. During this expansion the city constantly had to increase its utilities. The water-department records present the best evidence by showing an increase in water use from 10 mgd to 46 mgd.

The city has a long history of refuse disposal by incineration, dating back to

Above: The incinerator design is on simple, straightforward lines. Trucks can enter, discharge their loads, and drive out on ramp at the opposite end without the need for turning and maneuvering in the building.

Below: Each load is weighed upon entering the plant. The residue is also weighed to determine the amount of refuse reduction.

1897, when it built its first incinerator. This later was replaced by a DeCarie plant in 1907 that was operated until 1912. In that year the city installed its first Nye incinerator, using the rectangular design current at that time. The improvement proved so satisfactory (not only from the standpoint of economy, but also from the absence of odors or smoke nuisance) that Norfolk has continued to use this type since that time. The only change that it has made has been to replace certain of the older rectangular furnaces with the new Nye circular steel-jacketed furnace.

How Rectangular and Circular Furnaces Compare

This city can present direct comparison in cost of operation and efficiency between the rectangular furnace and the circular furnace, since Norfolk has three rectangular incinerators, and an older steel-jacketed furnace, as well as the new one. It is interesting to see the advantages and improvements recorded by the city officials. They record the rectangular incinerators as reducing the refuse for $1.12 per ton. The older circular furnaces perform the same task for 58 cents per ton, and the new Nye plant operates at a cost of only 42 cents per ton. All operations are conducted by the same personal and supervisory staff.

When Walter H. Taylor, III, then director of Public Works for the city, faced the problem of expansion of the city's refuse disposal facilities to take care of the city's unusual growth, he drew upon his years of incineration experience to meet the refuse disposal portion. He called on his engineering staff to prepare specifications around the principles of the Nye incinerator design and operation, which he was convinced was sound, and which, in fact, he has helped to develop. The design and specifications were prepared by Mr. S. Carlyle Morrisette, City Construction Engineer. The architects for the building were Rudolph, Van Lueun, and Cooke of Norfolk.

Area Served Not Apt to Expand

Norfolk is stretched over a 13-square-mile area. To make refuse-disposal work efficient, officials have built three incinerators over this area, and thereby have cut expensive hauling costs. The present plant is one of these. Located on the shore near the central portion of the city, it serves an area of approximately 7 square miles. The problem of additional growth here is not as great as at other plants. The area is in an older section that is well developed and probably will not have to accommodate much more housing. Consequently the designers could predict with accuracy the refuse volume that the incinerator would have to handle.

The collection of refuse is under the supervision of C. W. Armstrong. His department makes daily collections in about 12 business areas. Crews collect daily in the residential areas during the summer months—from May 15 to September 15—and collect in the winter on a three-day schedule. The Department uses a fleet of Gar Wood Load Packers to perform this work. The plant is operated under the personal direction of D. L. Brock.

Capacity Required

The Norfolk designers knew that they would have to handle roughly 135 tons of refuse per day, with little chance of the figure's going much over this amount. They, therefore, based the operations on an eight-hour working day with furnace capacity large enough to handle the total daily tonnage in one shift. This meant that the plant had to be rated at three times this figure, or roughly at 400 tons per day, on a 24-hour operation.

Mr. Taylor, who is a native of this section, knew that the climatic conditions, which are typical of southern cities, encouraged rapid decomposition of refuse. This, of course, is accompanied by flies, insects, odors of putrefaction, and other nuisances. For that reason they have never looked with favor on the use of a storage bin and subsequent rehandling of the refuse prior to charging it in the furnace. Norfolk's designs always have been based on the principle of getting the refuse as quickly as possible into the furnace of adequate size. This type of design requires larger furnace units and careful attention by the operators to keep the charging floor clean.

Trucks Drive Straight Through

The new incinerator building is designed so that trucks can enter at one end, discharge their loads, and drive out the other end without backing and turning. The building itself is 50 feet wide and 128 feet long. It is three stories high, with ramps leading to and from the charging floor. The basement floor is used for ash removal, the second floor contains the furnaces, and the top floor is used for charging.

In disposing of refuse, the loaded truck is weighed just outside the building, after which it is directed to a specific furnace that will receive the load. The operators remove the cover of the charging hole and the trucks dump the entire load directly into the furnace. Incineration begins immediately. The burning starts at the edge of the furnace grate and proceeds toward the center of the cone of refuse. Burning in the furnace takes place in a temperature varying from 1,400° to 1,600° F. The large conical pile which the burned material makes in the fur-

The refuse is dumped directly on the charging floor. Norfolk prefers to burn all its refuse immediately.

The four incinerator units that provide large enough burning capacity to hold a peak day's accumulation.

n[illegible] provides a large-area burning surface, and allows the burned material to roll down the side of the cone to the outside edge of the furnace, where it can be discharged to the hopper below the grates.

The furnaces can handle all the usual refuse picked up in the city except ashes or street dirt. No effort is made to separate cans, bottles or other noncombustibles which naturally occur in the collection. The only salvaging which is ever done is that of separating paper and cardboard and this, of course, only makes the refuse more difficult to burn.

Six-Man Crew Adequate

A six-man crew handles the disposal operation except for weighing and supervising. One man working from 8 a.m. attends to the ash removal. Because of the small amount of ash he is free during the busiest hours of collection to work on the charging floor. The other men work in shifts. Two men start at 7:30 a.m., clean out the furnaces, and are able to leave at 3:30 p.m. Two other men start working at 8:30 a.m. and leave at 4:30 p.m. When the peak load for the day begins to arrive at the plant the entire crew of six men is on duty.

The operation, and the plant's records, produce the data from which engineers and public works departments can work in planning incineration operations. Actually, the cost of incineration per ton of refuse at the new Norfolk plant is only 42 cents per ton; however, lower labor costs at this location must be taken into consideration with other locations. The figure of labor requirements of 0.34 man-hours per ton of refuse is one that is translatable to any other city.

What Tests Disclose

The record properly should be examined further. Engineer Morrisette made thorough tests of the incinerator performance when it was accepted, and satisfied himself that each cell can handle refuse at the rate of 135 tons per 24 hours, and produce a residue amounting to no more than 12% of the original weight. On this basis he is perfectly confident to rate the incinerator at 540 tons per 24 hours, and accepts the additional 140 tons of capacity as the margin that the contractor furnished in order to meet safely the specifications.

Using this tested figure, and matching it against the contract cost of $316,000, one obtains the really surprising over-all figure of $585 per rated ton in incineration capacity. As noted previously, these figures would not necessarily hold today, but would be expected to rise with the building costs.

This is the entire crew that handles the 400-ton plant at Norfolk. The man at the left acts as weighmaster.

Again using the tested figure of plant capacity, Mr. Morrisette observed that his same crew of six could easily operate the incinerator at the rate of 540 tons per 24 hours. Cutting this back to an 8-hour shift, one comes up with the economical figure of 0.27 man-hours per ton of refuse incinerated.

The incinerator operates under the Department of Public Works. Its construction was started under W. H. Taylor, III, Director, who resigned before its completion after 40 years of service to the city. He was succeeded by Henry H. George, III, the present director.

A Modern City Treasury

By L. V. McCARDLE
Treasurer
Los Angeles, Calif.

THE daily receipts of the Los Angeles city-department branch offices are deposited in branch banks, where they are credited to the Treasurer's account at the bank's main office. This system eliminates the hazard of money transit.

The Treasurer is custodian of $190,000,000 worth of securities, purchased from city funds and from the surplus funds of city departments. Some are investments made by the pension and retirement boards. All securities are kept in a National Safe Company vault, at which a policeman stands guard all day. A bandit-resisting enclosure and alarm system, connected directly with the Police Department, was installed in 1941 by the O. B. McClintock Company and has reduced by one-third the cost of our burglary insurance.

Another function of our department is the arrangement for the preparation, delivery, and payment of municipal bonds, which are issued and sold by the city. We use a Burroughs bookkeeping machine for posting all receipts and disbursements to the several fund accounts. For the year ending June 30, 1947, receipts totaled $180,715,301, and disbursements (including matured bonds and coupons) amounted to $174,240,694. The balance in some 375 fund accounts was $126,028,778.

The City Treasurer is also an issuing agent for U. S. Savings Bonds purchased by some 3,500 employes. The posting for this is done on a Burroughs bank-posting machine.

One of the most important jobs is the handling of municipal improvement bonds. Local improvements in Los Angeles are paid by levying assessments against parcels of land and by issuing bonds to represent unpaid assessments of $25 or more. Bonds are delivered to the contractor or his assignee. The term of the bonds is usually for 10 years, and they bear interest at 6% per annum, payable semi-annually on January 2 and July 2. One-tenth of the principal is payable annually on January 2. A delinquent payment gives the bondholder the right to foreclose on any property.

With recent post-war municipal improvements, there will be approximately 300,000 improvement bonds issued during the next five years. The processing of this large number of bonds has been simplified by using I. B. M. Electromatic typewriters and a Multilith machine. Results indicate a savings of one-third both in cost and time, compared with the former method of processing the bonds by hand.

The latest improvement in the City Treasury quarters is the new fluorescent lighting, with a light for every 8 square feet of area. In order to eliminate the noise of the mechanized equipment, the ceiling over certain sections of the office has been soundproofed through the use of acoustical tile. Improvements such as these have made the Treasury a pleasant and efficient place in which to work.

This view of Teterboro and surrounding area, taken in April 1946, shows its proximity to New York City, in the background. The airport is in the center, with the hangars toward the right. At the left is the Bendix Corporation plant.

COURTESY OF HANS GROENHOFF

A March 1948 photo of the airport and runways shows the many new buildings and improvements. Original hangars are barely visible on the far right.

Teterboro—
Lilliputian Council-Manager City

By BENNETT M. RICH
and
GEORGE H. CUNNINGHAM
Rutgers University

TETERBORO, in Bergen County, New Jersey, is unique among council manager governments. Its 40 inhabitants, 26 of whom are voters, constitute the world's smallest unit of government with the council-manager form. Over a third of the adult population hold public office, the majority without compensation, yet not a single resident owns property. Ninety-five per cent vote regularly, always Republican. The per-capita tax is probably the highest in the country, yet the inhabitants pay not one cent toward the operation of the city or county governments.

The city is located in the midst of North Jersey's industrial and residential area within sight of the Empire State Building, only thirty minutes from Times Square. Walter Teter, the man for whom the borough is named, purchased the property to provide a community in which taxes and politics would be minor problems for industry. In 1917, as a step toward the accomplishment of this goal, he persuaded the 18 inhabitants and the New Jersey Legislature to form an independent municipal corporation.

Aircraft Industries

For some years the principal economic activity in the borough was truck gardening. As most of the area is only five feet above sea level, considerable work was done on the drainage problem. In 1920 a brick and steel factory was constructed and a flying field established. The factory was taken over by Anthony Fokker in 1928 for the construction of his tri-motored transports made famous by Admiral Byrd in flights over the Atlantic and polar regions.

The first large industry to locate in Teterboro was the Bendix Aviation Corporation, which purchased one hundred of the borough's 715 acres in 1937. The same year, the name of the municipality was changed to Bendix in recognition of an anticipated expenditure of $3,000,000 for a plant designed to produce aircraft instruments. At this time also, Air Associates, Incorporated, an aircraft accessory company, purchased property and erected a plant.

National attention was centered on the town in 1941 when federal troops were moved in during a strike at Air Associates. The unfavorable publicity given to Bendix enterprises because of public confusion surrounding the name of the town and the name of the plant on strike was largely responsible for changing the name back to Teterboro in 1943.

"Busiest" Private Airport

The privately owned airport which constitutes over four-sevenths of Teterboro's total area is at present a subject of conversation wherever air men gather. Extensive paved runways have recently been constructed. Steel hangars and Quonset huts have sprung up to serve as offices and shops for the many domestic and international air cargo lines which use the field as a base for maintenance. Teterboro is now the world's busiest private airport, averaging 1,000 plane movements daily. An indication of the airport's phenomenal growth may be obtained from the reported record of gasoline sales: 5,427 gallons in January 1946, 170,000 gallons in January 1947, and an estimated 300,000 gallons by January 1948.

The coming of big business has had no appreciable effect on the population of the city. Walter Teter, interested chiefly in industry because the land was not suitable for residential purposes, placed a restrictive covenant in every deed, preventing residential building.

In order to provide the most efficient form of government for industry, and to reduce political considerations to the absolute minimum, the council-manager form of government was adopted in 1938. Lou F. Mitten, who came to Tetermoro in 1931 as manager of the airport, and of properties owned by the Edwards Estate with offices in Pennsylvania, was appointed city manager, a post he still holds.

Government in Miniature

The structure of the municipal government conforms to New Jersey's council-manager law. There is a council of five members, one of whom is selected by his brother councilmen to serve as mayor. The present mayor has held that office since the incorporation of the Borough in 1917. The only full-time employees, in addition to the manager, are the borough clerk, who is also the manager's secretary, and the chief of police. A three-man board of education, which is independent of the council, in accordance with New Jersey law, arranges tuition payments and transportation of the city's four pupils, who attend school in Hackensack.

The industrial establishments provide their own fire protection. Both Bendix Aviation Corporation and Air Associates are equipped with sprinkler systems. The airfield maintains its own crash truck and special fire equipment. Fire protection of the seven residences is supplied by a near-by municipality through an informal agreement between the city managers. Outside assistance has been necessary only three times since 1931.

Public Health and Drainage

The public-health problems of the community are handled by a three-man health board and a health inspector. Teterboro does not have a sewage problem comparable to surrounding municipalities, for the industrial waste is processed in the disposal plants of the industries themselves. Disposal for the residential area and the airport is by means of septic tanks.

The principal task of the health officer is the inspection of treatment plants to determine their conformity with local and state health rules. Further industrial development may force the city to build a disposal plant, although the proposed Hackensack-Bergen County Sewage Commission may enable the industries, if they so desire, to tie into a regional sewage line.

One of the borough's biggest problems has been that of drainage. Mr. Mitten, a mechanical engineer, was selected to manage the Teter properties in 1931 because of his specialized knowledge of drainage problems, acquired in the anthracite coalfields of Pennsylvania. He supervised the construction of two main ditches, in one of which water flows by gravity to a tidegate in the Hackensack River. This ditch was widened and deepened during the past year after county officials had secured additional right-of-way through an adjoining township. In the other, water is pumped a height of 4 feet to the main ditch and then has a gravity flow to the tidegate. The pumping station is owned by the municipality and operated by part-time personnel.

Tax Rates

One measure of the advancement of Teterboro is the tax value of its properties. In 1922 the assessed value was $142,585. This has risen to over $2,000,000 by 1946. The tax rate was $3.32 per hundred in 1946. In 1947 the rate dropped to $3.00, a figure which contrasts favorably with the New Jersey average of $5.50. Taxes per capita amounted to $1,827.35, none of which was collected from the residents. The collection of taxes is not especially onerous, since there are but four principal taxpayers who pay by check semi-annually. Teterboro's largest financial outlay, incidentally, is for the payment of county taxes.

The principal concern of the manager and council is to keep the taxpayers, rather than the residents, happy. A poll of the taxpayers is taken before any policy decision of great moment is decided. Yet the city's inhabitants are not forgotten. Their interests must be considered also, for without them, Teterboro, as a unit of government, could not exist.

Task Features Reconstruction Progress

RECONSTRUCTION is the theme of the first post-war issue of *Task*. The new illustrated 96-page issue, which combines Numbers 7 and 8, features articles by a wide range of international authorities on the planning and housing activities of European countries devastated by the war, of Latin America, of two colonial outposts in Africa, and of planning accomplishments in the U.S.S.R., Great Britain and the U. S. A. Statements from the International Federation for Housing and Town Planning and UNESCO are included.

Editor was Martin Meyerson; art adviser was Gyorgy Kepes, and the editorial council consisted of Catherine Bauer, T. J. Kent, Jr., Alderman Robert E. Merriam, J. L. Sert, Christopher Tunnard, and Robert C. Weaver.

In the introduction, Catherine Bauer points out that although *Task's* material is extremely varied, it all deals, in one way or another, with universal issues. She writes:

"Minimum standards, neighborhood forms, new towns and the revivification of old cities, the relation of modern social and physical science to architectural expression, the political dynamics of the planning process—these are all questions which transcend national barriers. Here is a bona fide point of contact between western democracy, capitalist or socialist, and communism, and between 'advanced' and 'under-developed' countries."

Copies of the issue may be obtained for $1.00 by addressing *Task* Magazine, Post Office Box 117, Cambridge 38, Mass.

Picking a Truck For a Purpose

STARTING with the proposition that the reason for buying a truck is that there is a load to be carried, the municipal official's job is to select a truck to fit the weight and characteristics of that load. Selecting a truck starts with the work to be performed, and the basic information is the size of the load. For this figure, together with the kind of load, determines the type and size of the body. The department knows whether a dump, pick-up, or panel body is wanted, and sometimes already has a truck body to be mounted on a new chassis of suitable size. Wheelbase is the distance between the centerlines of the front and the rear axles. Say you want to buy a standard 1½-ton chassis to carry a stake body 12 feet—144 inches—long, as 55 to 72% of the body should be ahead of the rear axle to provide good weight distribution, then the cab to axle (CA dimension) will be 144 x 55% plus 2 inches clearance between cab and body, or 81 inches. The truck data book of any manufacturer will show the chassis coming closest to furnishing this dimension. The same book will show the wheelbase fitting this dimension.

Gross vehicle weight (GVW) is the combined weight of the payload, the body, the chassis and the cab, as well as the equipment, the driver, gasoline, oil, and water. GVW is the true measuring stick of a truck's capacity to carry *and to move* its load. The old custom of loosely classifying trucks according to tons (½, ¾, 1½, etc.) is confusing and outmoded, as "1½-ton" trucks are likely as not to be carrying 4 tons. This is dangerous and expensive as well as confusing. A truck is designed and built to provide maximum life with minimum operating costs when kept within the established gross-vehicle-weight rating. Carrying more than this maximum allowable weight increases costs all along the line. Maintenance and repair costs are higher because parts wear out or break faster. Depreciation is more rapid. These costs may mount rapidly as the overload is increased.

Weight Distribution

The weight of the load is distributed front and rear over axles, springs, wheels, and tires. The way in which the load is distributed front and rear determines how much weight these units must carry. Thus it is easily possible for a loaded truck to be within its maximum gross-vehicle-capacity rating and still be overloaded front or rear if weight distribution is not correct. The distribution of weight front and rear affects braking ability, traction, riding, steering, and operating costs.

The distribution of the body and payload weight on the front and rear axles is controlled by the location of the center of the load in relation to the rear axle. The amount of load carried on front and rear axles with a given body length depends on the wheelbase. That is why weight distribution must be considered in determining the wheelbase, so that the proper proportions of load will be carried on front and rear axles.

Heavily concentrated loads, such as gravel, do not require the body length provided by a trailer, but on the other hand, a standard chassis does not have the weight-carrying capacity required for such loads. Then, too, in some states there is a legal restriction upon the amount of weight that can be carried per axle, and six-wheel units are designed for operation under such conditions. By distributing the load over an extra axle with its extra wheels and tires, the weight per axle and tire is decreased, permitting, subject to the laws of the state, the carrying of heavier loads than would be permissible or possible with a standard four-wheel chassis. Wheelbase, on a six-wheel unit, is measured from the center of the front axle to the center line between the two rear axles. Where a truck is required to pull a load which is too bulky or too heavy to carry "on its back," a tractor with a trailer can be used profitably. Since a major part of the payload is carried by the trailer, the maximum allowable gross-weight rating for the tractor-trailer combination is considerably greater than for the tractor alone. It must be remembered, however, that while tractor-trailer operation increases *load-carrying* ability, it does not increase *load-moving* ability.

The load-carrying units are the wheels, tires, axles, springs, and frame. In each case they must be suited to the GVW. As in the case of load-carrying units, load-moving units, engines, clutches, transmissions, propeller shafts, universal joints, rear axles, axle shafts and gear ratios are also engineered for specific functions, as shown in the manufacturer's truck data book. The proper selection of these units pays off well in owner satisfaction. The method is simple and will be sent to any reader on request to THE AMERICAN CITY.

The three factors that enter into the amount of ability available in a truck, and how to match the ability available to the amount required, are simple and easily understood.

Torque is the twisting or turning force exerted on the crankshaft by engine operation. It is the quality in an engine, along with rear-axle ratio, that denotes the amount of ability an engine possesses for keeping a truck in motion or for climbing hills. Therefore, the amount of torque an engine develops is a basic factor in determining a truck's ability. In modern engines, torque is closely proportioned to engine size and displacement, regardless of make or design.

Increasing Ability

The torque developed by the engine is amplified by means of gears. These gears act like levers and increase the amount of ability available, just as a lever does. Different leverages are provided by the different speeds in the transmission. The rear-axle gears also increase ability. The rear-axle ratio is the factor which provides greatest control over ability, since it is most easily changed.

The rear tires are also a factor in a truck's ability. The rear wheels turn once for each revolution of the axle shaft, and the vehicle moves forward a distance equal to the circumference of the tire. The larger the tire, the further the vehicle moves per revolution; thus large tires contribute to greater speed. However, as the diameter of a tire increases, the force exerted at the road decreases. That is why with larger rear tires less tractive effort is available.

Municipal departments usually require a special body to fit their particular loads or requirements. These include utility bodies, basically 6- and 7-foot lengths (longer lengths may be required); dump bodies, in 7- to 10-foot lengths, equipped with mechanical or hydraulic hoist, or center gravity dump; tank bodies, usually 1,000 gallons and up; (tank bodies of less than 1,000 gallons may also be required); fire trucks, various types and sizes such as chemical or pumper units; garbage trucks; snowplows and graders; concrete mixers; wreckers; ambulances.

Some items of special equipment are bought to replace the original one, such as air brakes to replace hydraulic brakes. Other special equipment items are bought to supplement the truck equipment, and serve to fit the truck better to its job. Some of the latter are fifth wheel, power take-off, air-actuated hydraulic brake, auxiliary gasoline tanks, winches, pole-setting equipment,

Dump truck on a Diamond T chassis.

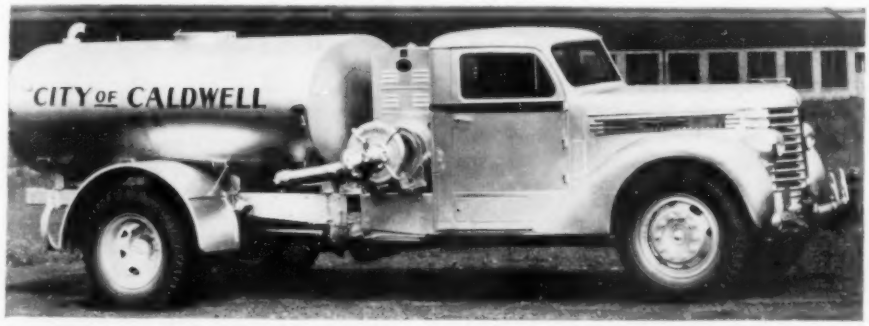
Etnyre bituminous distributor on Reo chassis.

post-hole diggers, auxiliary axles, air compressors or welding equipment.

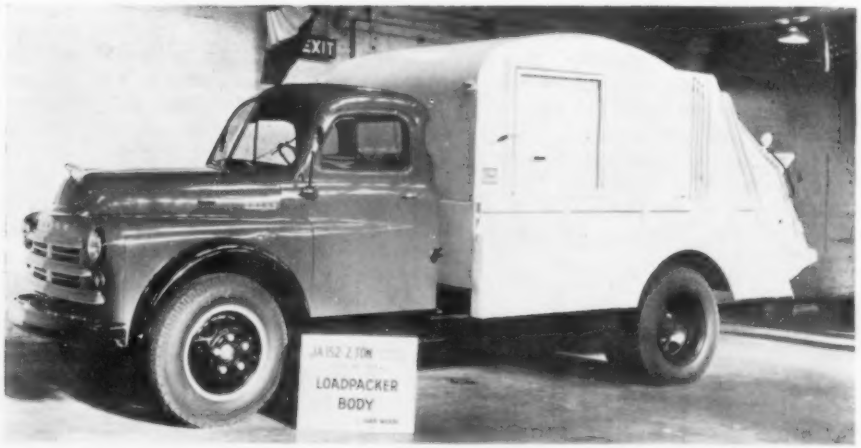
Many dealers and salesmen think of accessories in a passenger-car sense, but neglect accessories for trucks. Here are just a few truck-accessory items: tire chains, safety equipment such as flares, horns, heaters, defrosters, clearance lights, directional signal lights, fog-lights, spotlights, cab ventilators, tow hooks, windshield wipers, governors, hydraulic jacks, antifreeze, oil filters, and air cleaners.

For a detailed discussion of the know-how of truck selection for any municipal function, with examples of applied methods, write to THE AMERICAN CITY, 470 Fourth Ave., New York 16. Also answered are such questions as: Will a particular truck haul the required load? What schedules can the truck maintain over given routes? Can the truck climb the grades encountered?

Gar Wood dual boom wrecker on a Ward La France chassis owned by one of the large cities.



Sprinkler with 1,200-gallon tank on a 2½-ton Diamond T chassis.



Gar Wood Loadpacker body on a Dodge 2-ton chassis.

Systematic Inspection of Substandard Housing

Introduction

By EMIL A. TIBONI
Field Secretary
Committee on the Hygiene of Housing
American Public Health Association

THERE exists in virtually every community some substandard housing. The amount, type and location; the cause and cure, and the responsibility for action may differ widely according to local institutions of government; the tradition, size, and degree of urbanization of the community, or other local factors. The need for systematic and coordinated official action to deal with the problem is the same, however, whether its purpose be to halt the inroads of decay into a generally satisfactory area, to rehabilitate areas of mixed quality, or to bring about the complete clearance and redevelopment of a universally recognized slum. This action can be based only on adequate, accurate information which is understandable and available to all interested agencies.

In some communities, the "blighted" areas have been designated with misleading exactness by processing nationally tabulated or nationally sponsored data to an over-refined degree; in some they have been attacked forcefully but on a piecemeal basis, with only a vague concept of the total size and location of the problem; in others their existence has been ignored and even denied, while in a few, coordinated official action by a number of local agencies has produced information and results worthy of attention by other localities.

In recent years, the American Public Health Association's appraisal method for measuring the quality of housing has been used in an increasing number of communities to learn locally the facts about substandard housing. The size of these communities has ranged from large metropolitan centers to small cities and towns. The purposes of its use have been manifold. Not only has it been possible for local officials to draw a sharp line on the map to show *where* the substandard dwellings and neighborhoods are, but they have also been able to say *why* they are substandard, *who* lives in them, *what* can be done about them, and *how* the local agencies, both official and unofficial, can cooperate in the elimination of blight.

The experience and views of responsible officials in five of these communities are presented here as examples. Each community is representative of a kind of use of the method or type of approach. The programs discussed are in operation in Los Angeles, where the APHA method has been in use since 1944; Brookline, Mass., where systematic housing inspection as well has been a part of the health department's activities since 1946; Philadelphia and St. Louis, which began their use of it for redevelopment studies later in 1946; and Battle Creek, which began a community-wide study of housing as a basis for extended cooperative action in 1947.

In these cities, as in others, the systematic use of the APHA inspection and appraisal procedure began with the recognition of its usefulness by a local official. It has proved to be a basic factor in the growth of an increasingly effective housing program. The success of any community in a similar program depends only on the desire, the degree of imagination, and the administrative ability of its public officials.

Further information and publications describing the housing appraisal method are available from the Committee on the Hygiene of Housing, 321 Congress Ave., New Haven 11, Conn.

Los Angeles, Calif.

By JOSEPH SOLLINS
Housing Supervisor
Department of Health

WHEN public-health agencies enforce local housing codes, they are perpetuating the compromises on which ordinances are based. The American Public Health Association appraisal method, on the other hand, is soundly based on the health, social, and environmental needs of the family, and encourages program planning for community welfare.

No housing enforcement program can be expected to produce lasting results unless properly planned. For example, approximately a year before the survey method was applied in Los Angeles, the Health Department condemned and vacated a large hotel in the downtown district. Through National Housing Agency funds, and at appreciable cost, the hotel was remodeled and converted into family apartments. Now the fifty or more children who occupy the building have no place to play except in the hallways, the alley, or the front sidewalk. Their natural urge to play is turned destructively on plumbing fixtures, hallways, and other building appurtenances. They are forced to mingle with customers from nearby taverns, night clubs, and similar neighborhood establishments. The remodeling was clearly a mistake.

The American Public Health Association survey, when applied in this same area, indicated it to be primarily one of wholesale and retail merchandising, light manufacturing, and businesses such as restaurants, taverns, parking lots and theaters. The intermingled living units were hotels, cheap rooming houses, apartments, and a scattering of private residences. Occupancy was of an overcrowded family type. Maintenance of these units was extremely poor. The environment, although unfit for families, proved to be less objectionable for much needed transient hotels and rooming units and for single persons or childless couples.

Area Characteristics Shown

By establishing the relationship between the dwelling and its environment, the survey showed the correction program required was not "slum clearance" but occupancy change. Improvements could not be accomplished unless family-type occupancy was weeded out. Although the area is zoned as "Commercial," the zoning regulations do not apply to existing buildings. Building

laws permit repairs amounting to 10% of the building value in any one year, without requiring the structures to conform to latest fire and zoning regulations.

Unfit Buildings Vacated By Decree

In accordance with the plan suggested by the appraisal method, Health Department inspectors are not requiring major repair and reconstruction of family units in the area. As these units become unfit for habitation, they are ordered vacated by the Board of Health Commissioners. Buildings that are beyond repair are referred to the Department of Building and Safety for demolition. Families are prevented from reoccupying vacated hotels or rooming houses, and office, store, garage and similar buildings revert to the original use intended.

The program is being expanded and improved. Long-range planning must include replacement housing. It requiries further prohibition of conversion to, or construction of, new illegal family units. Ordinance changes and formalized agreements between city agencies are necessary to further restrict major repairs and reconstruction of non-conforming structures, and to require the demolition of those units that have passed beyond acceptable limits.

Broadened use of the American Public Health Association housing appraisal method will furnish the necessary "blueprint" for a more truly constructive housing program, with the Health Department working in a team with other city departments.

Brookline, Mass.

By **ALFRED L. FRECHETTE, M.D.**
Director of Public Health

IN 1941, as a result of a fire in which the life of a fireman was lost and which stemmed from extremely hazardous conditions, an effort was made in Brookline to improve the various types of inspections related to safety and housing. After considering the problem with various department heads, the Board of Selectmen organized a committee composed of the heads of six town departments, namely: the Fire Chief, the Police Chief, the Building Commissioner, the Director of Public Health, the Town Engineer, and the Town Counsel. All of these department heads had interest in the problem and began by meeting weekly to strengthen their individual programs and to coordinate the work of the entire field.

The committee concerned itself with inspections of tenement houses, rooming houses, bowling alleys, convalescent or nursing homes, all places of public assembly, garages, and buildings which appeared debilitated. The latter were inspected either on complaint or on the committe's own initiative.

Late in 1946 the idea of using the appraisal method for the inspection of housing, developed by the American Public Health Association, was discussed. There was a feeling, particularly in regard to the debilitated or substandard houses, that the work had been too much on a "hit-or-miss" basis and that a systematic house-to-house check should be made in selected sections of the community where the problem was obviously greatest. After investigation, the committee decided to use the APHA method. At about the same time, due to the appointment of a new Director of Public Health and the retirement of the Fire Chief, there was a reorganization of the personnel of the committee, and the Director of Public Health was designated Executive Secretary. The field work of the committee then came under the direction of the Health Department, where it has been coordinated with the work of the Sanitation Division.

The method has been used effectively for the inspection of tenement houses, rooming houses, convalescent homes, and for all housing in those areas of the community which might be considered substandard. Using a small field crew (four men), a sizable portion of the community has had thorough study from the standpoint of maintenance, facilities, occupancy, and the neighborhood environment.

Concurrently with the use of the method, and as a result of it, new regulations pertaining to rooming houses have been formulated. At the present time, a committee is working on a new draft of the Building Code. Information produced as the result of the use of the appraisal method has been invaluable in the work. In connection with a recent Town Meeting, there was an article dealing with the possible development of a new recreation center. The factual material available on the living conditions of the persons to be served by this recreation center was used in developing the plans, and made the need of a recreation center obvious. Also considered at the same Town Meeting was the problem of creating a housing authority. Again, the committee had basic factual material on housing conditions which was quickly available to the town fathers to assist them in reaching a sound decision. The School Department is using the material in studies of population trends and future needs for school buildings, etc. The Planning Board has been very much interested and has participated in the work through its secretary, who is the Town Engineer and a member of the committee.

Example Followed by Other Cities

Although no comprehensive report has yet been prepared and no attempt to publicize the work has been made, there has been an increased awareness on the part of neighboring communities of what Brookline has been doing in this field. There have been numerous inquiries, and two large cities, after conferences with the Brookline officials, have made tentative plans to develop a somewhat similar program using the American Public Health Association method.

St. Louis, Mo.

By **JOHN BUXELL**
Engineering Director
Division of Health

UNDER a cooperative arrangement, the City Plan Commission and the Health Division of St. Louis started a study of conditions of housing and their neighborhood environment in November 1946. The American Public Health Association's appraisal method was used, with only minor modifications to fit local ordinances, and to secure specialized data of particular interest to some of the agencies of this city. Funds were supplied through special appropriations to the budgets of both cooperating agencies. The architect of the City Plan Commission made the environmental surveys, while the housing-survey portion was directed and carried out by employees of the Health Division.

The immediate purposes of the study were:

1. To provide information for the enforcement of present ordinances.

2. To present a detailed picture of the conditions of housing in the areas studied.
3. To present a picture of the quality of the neighborhood environment and its relation to housing conditions.
4. To demonstrate an inspection plan of potential use to all agencies of the city interested in housing improvement.
5. To provide information to judge the advisability and effect of a proposed minimum housing standards ordinance and of its individual provisions.

These immediate objectives are believed to be achieved **generally.**

Long-Range Objectives

Long-range objectives were:

1. To analyze conditions in the neighborhoods so as to anticipate problems of enforcement of the proposed minimum-housing-standards ordinance and to classify buildings and neighborhoods so as to be able to plan a systematic enforcement of this ordinance.
2. To provide detailed information for neighborhood planning under the Master City Plan of St. Louis.

The result of the study of the first two neighborhoods have been published. Work continues and it is hoped to carry on such appraisal studies continuously and to produce eventually a comprehensive and reasonably up-to-date file of detailed information on substandard housing conditions.*

The screening of violations of present ordinances has been a very valuable result. Such screening provides a systematic method of locating violations with a minimum of inspectors and a minimum of training for such inspectors. The information gathered is relayed to the building-inspection and fire-prevention agencies as soon as possible, as well as being used by enforcement officers of the Health Division.

The accuracy of the housing findings, although made on a sampling basis and with personnel of negligible technical training or experience, has been found to be high as verified by later enforcement action. Total costs of the study, including supervision and administration, have been $1.88 per dwelling unit actually inspected. Present costs, with a more permanent organization but increasing personnel and supply costs, are estimated at $1.97 per dwelling unit studied.

* Housing and Neighborhood Study: Montgomery and Vandeventer Neighborhoods, City Plan Commission and Health Division, St. Louis, Mo., September 1947.

Battle Creek, Mich.

By **HERBERT J. DUNSMORE**
Director of Sanitation
Calhoun County Health Department

IN JULY 1944, the Health Departments of the City of Battle Creek and Calhoun County were merged into one county health department. The problem of housing soon made itself known to the new health department in the form of nuisance complaints, involving such matters as inadequate plumbing facilities, bad state of repair, garbage on the premises and in apartments, poor wiring, etc. To attack these complaints separately was a discouraging and hopeless task. No one in the city had any idea of the extent or the kinds of problems that existed or the influences that brought about such conditions. There were no city ordinances available to do much about the problem, except to make a courtesy call and try to appease the complaining party. One such complaint was highlighted in the local newspaper with pictures showing the deplorable conditions. Many similar conditions were brought to the attention of the Health Department as a result of the article. A cursory survey of these complaints revealed that many of them were well founded.

There also existed extensive unsewered areas in the city which brought in their share of nuisance complaints of health significance.

The final blow came at Easter in 1947, when 55 blocks of residential community were flooded, making some 500 people homeless.

Some method had to be found to get an accurate and detailed survey of the blighted areas as a starting point from which suitable action could be taken to correct these conditions for the best over-all good to the community.

To be successful, any plan to improve the community's housing must include the counsel and advice of the various affected parts. To accomplish this in Battle Creek, an Area Coordinating Council was set up which included persons from the city and the four surrounding townships. This council was made up of 32 separate groups and 56 people, including representatives from government, schools, industry, labor, builders, realtors, investors, the chamber of commerce, merchants, health, welfare, the medical society, etc.

Extent of Survey

A grant from the W. K. Kellogg Foundation was made to the Health Department to cover the cost of a housing survey. In June 1947, a staff of eight persons was trained and set about the task of making the survey. In 65 days, 2,001 dwelling units were surveyed, covering 271 blocks, or approximately one-third of the community. A thorough study of the conditions of the environment of these dwellings was also made. These blocks included all of the suspected blighted areas. The cost of the entire survey, using especially hired personnel, was less than $5,000.

Other agencies in the city might well have made the survey. It is not important what group in a community makes a housing survey, however. The important point is that it gets done, and that some well-organized plans be formulated to bring about a more healthful and wholesome place to live and work and play. We feel confident that, as a result of this survey, we have information needed to make these plans for our community. A formal report of the most important findings of the survey is now being prepared. This report, and the detailed information on which it is based, will provide the answers to the questions of all of the community agencies concerned with housing conditions. With this kind of information about all the suspected substandard areas, and with the action of the community groups integrated by the Area Coordinating Council, concrete results are expected soon.

Philadelphia, Pa.

By **DR. HAROLD M. MAYER,** *Chief*
Division of Planning Analysis
City Planning Commission

PHILADELPHIA is looking closely at its blighted areas. An area of approximately 20 square miles including about 125,000 dwelling units is being examined by the use of the APHA survey technique, which includes analysis of both the dwelling and the environment. Within this area a 20% sample of all dwellings has been inspected.

The survey is being carried out under the auspices of the City Planning Commission, the Redevelopment Authority, and the Philadelphia Housing Authority. It is primarily intended to supply information relative to physical and environmental conditions of housing in areas which are believed to be in need of redevelopment.

The APHA survey is intended primarily to serve two functions: (1) to assist in the possible selection of additional areas for certification for redevelopment, and (2) to furnish a sensitive yardstick of the characteristics of the housing, and the environmental conditions affecting the housing, within the areas, which must be considered in developing plans for the areas. Other surveys will also be carried on in the certified areas relative to social and economic conditions.

There are few areas in Philadelphia which will require complete demolition and the uprooting of the existing populations and their replacement by new housing and new populations; most areas can, it is believed, be treated by a more selective process, including demolition of the worst housing, rehabilitation of much of the existing residential development, changing of the traffic patterns, and similar types of treatment. For this, a sensitive measurement is essential.

The data from the APHA survey are to be used to aid the participating agencies in determining, for each section of the redevelopment areas, the broad nature of the treatment to be recommended. In this, the total dwelling and environmental scores will be chiefly useful in comparing areas. The scores for the individual items covered by the survey will be valuable guides to the conditions that will determine the nature of the treatment for each section of the redevelopment areas.

Map of 10 Philadelphia redevelopment areas appeared on the front cover of THE AMERICAN CITY for March 1948, with an article on the city's redevelopment procedures on page 120.

Store Modernization Caravan To Visit Many Cities

PLANNED as a service to civic organizations, bankers, and architects, twelve model stores constructed to one-eighth scale have been designed by the Pittsburgh Plate Glass Company and mounted in specially constructed trailers for showing in every city of more than 40,000 population during the next three years. This "Store Modernization Caravan" features the new "open-front" stores designed to expose their interiors to the passing potential customer.

Given special emphasis in the promotional drive are group modernization programs similar to those adopted in Franklin Square, Long Island; Rome, N. Y.; Faribault, Minn., and Miami, Fla. Major face-lifting programs will put business districts in smaller towns and suburban communities in a stronger competitive position, it is said, because, generally, an area with all stores modernized according to a plan will eventually attract more trade than a block of both old and new stores. There are also many economies and design advantages to be gained through such cooperative group planning of store fronts. One such feature, for example, might be a continuous projecting canopy for customer shelter during inclement weather.

Before such a group modernization program can be accomplished, the company points out, there must be some central group or person interested in taking the initiative.*

A trailer in which the modernized store-front models will be exhibited.

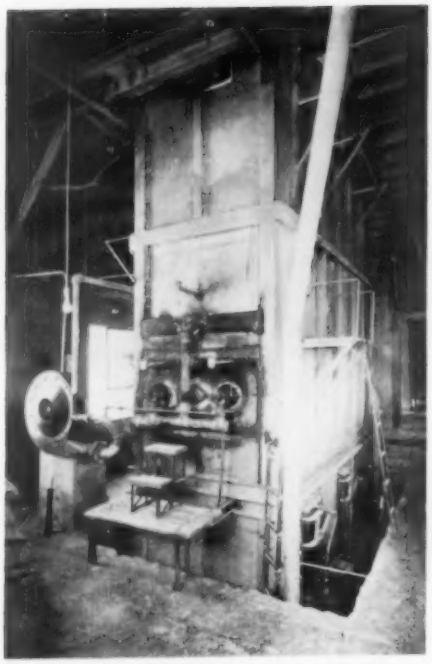
This photo gives a good idea of the size and detail of a model store.

Model of a grocery store, made glamorous.

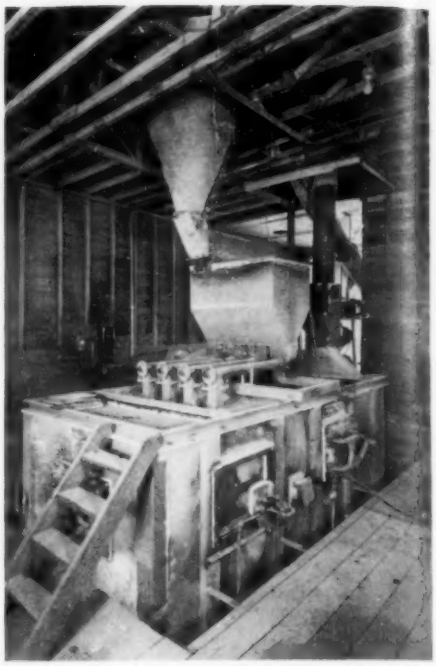
* "Questions and Answers on Group Modernization Programs," a three-page mimeographed paper, is available upon request to the Public Relations Department, Pittsburgh Plate Glass Company, 632 Duquesne Way, Pittsburgh 22, Pennsylvania.

Clinics on problems of store modernization will be conducted to coincide with the International Store Modernization Show at the Grand Central Palace, New York City, July 6-10 inclusive. Subjects to be covered are "Store Layout and Traffic," "Store Lighting and Color," "Displays and Fixtures," "Store Fronts," and "Planning and Budgeting for Modernization." Further information may be obtained from John W. H. Evans, Store Modernization Show, 40 E. 49th St. New York 17.

It's No Longer An Experiment



The oil-fired calcining furnace. The lime-removal auger is in the basement just below.



The upper portion of the calcining furnace carries the screw-auger-type feed machine.

The Marshalltown, Iowa, water works demonstrates how to reclaim sludge from a lime-and-soda-ash water-softening plant and save money while also eliminating a very troublesome sludge-disposal problem

By H. V. PEDERSEN
City Water Works Superintendent
Marshalltown, Iowa

CALCINING sludge from a lime-soda-ash softening plant has now passed well beyond the experimental stage. Data that we have been able to assemble, based on operation of the calcining plant serving our water works, demonstrate that calcining effectively eliminates the expensive and rather messy task of disposing of this sludge, and also is able to do the work profitably if care is exercised in the preliminary design.

How It Works

The process works quickly. Strange as it sounds, a high-grade lime can be returned to a storage bin ready for use within five minutes after a waste slurry has been drawn from a settling tank.

The process as perfected at Marshalltown, Iowa, is comparatively simple. First, a waste slurry is fed into a Bird centrifuge that separates the calcium carbonate as a cake. The centrate, consisting of water, magnesium, and iron impurities, is discharged immediately into a sanitary sewer. The cake, containing 40% moisture, falls into a horizontal mixing machine where enough pre-dried material is added, forming a more easily handled mix.

Passing from one end of the horizontal mixer to the other, the material drops into a Raymond flash-drying fan where the temperatures are maintained at 900 degrees. From the drying-fan, the material is blown upward to a height of 30 feet to a vented cyclone where the steam and carbon dioxide escape into the air. The dried carbonate flows out of the lower end of the cyclone to a mechanical dry divider. From this divider, a predetermined amount returns by gravity to the horizontal mixer, while the rest, by means of a screw auger, is carried to and fed into a vertical outlet stack of a Pedersen calcining furnace. As fast as the carbonate flows into the vertical stack, it is carried upward by means of suction 15 feet in height to a second cyclone. During this upward travel, the carbonate is preheated to a temperature of 900 degrees.

After preheating the carbonate, the excess heat from the vertical outlet stack of the furnace is transferred from the top of the cyclone to the suction intake of the drying fan. The preheated carbonate flows out of the bottom of the cyclone into a hopper of a screw-type feed machine, where it is fed into the calcining chamber of a Pedersen flash calcining furnace. Calcining temperature is maintained at 1,800 degrees by means of oil burners.

The quicklime is removed from the bottom of the furnace as fast as it is made by means of water-cooled screw augers. It is then conveyed by means of a suction fan to a storage bin directly above the lime-slaking machine used in the softening process. As stated, the entire operation requires about five minutes.

Centrifuge Determines Capacity

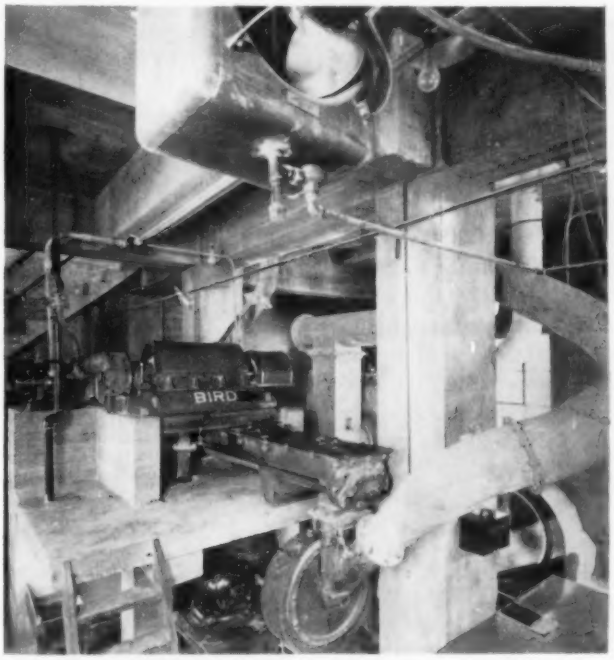
The rated capacity of a calcining plant depends on the capacity of the centrifuge installed. In this city, an 18-by-28 unit separates 1,200 pounds of calcium carbonate per hour on a dry basis. All the drying and calcining equipment is therefore built to handle this amount of material. But since the weight of the lime produced in the calcining process is approximately one-half the weight of the dried carbonate, the actual rated capacity of the calcining furnace in terms of lime produced is 600 pounds per hour, or 7 tons per day if operated continuously for a 24-hour period.

At Marshalltown the amount of lime sludge removed daily from the settling tank amounts to approximately 5 tons of dried carbonate. Therefore, the calcining plant is operated between 8 and 9 hours each day in order to produce 2½ tons of lime. These capacities are conservative, as 675 pounds of lime have been produced per hour for a 9-hour run.

Fuel and Electric Current Requirements

Three factors enter into the cost of operating a calcining plant: fuel, electric power, and labor. For fuel we use oil; however, gas performs equally well. The actual number of gallons of fuel oil required to produce a ton of lime varies, depending upon the number of hours the plant is in operation out of a possible 24-hour day. If the calcining furnace is shut down after an 8- or 9-hour run and allowed to cool, it is necessary to bring it back to a calcining temperature each morning. The longer the day's run, the less fuel it takes to reheat the furnace. At Marshalltown, 23 gallons of fuel oil are consumed to preheat the furnace after each preceding day's 9-hour run. After a 15-hour day's run, the preheating oil is reduced to 18 gallons. Operating on the basis of a 9-hour day and including the oil used to reheat the furnace, a ton of lime is produced with between 75 and 80 gallons of fuel oil, when using #3 low B.T.U. oil. When operating on a 15-hour day basis, a ton of lime is produced with 70 to 75 gallons. Lack of sludge makes it impossible to operate for 24 hours at Marshalltown, but indications are that if it were possible, the fuel per ton would drop between 65 and 70 gallons.

The electrical energy required to operate a calcining plant is a fairly constant factor, regardless of the length of runs. At Marshalltown, a ton of lime is produced for every 100 kw when operating on either a 9- or 15-hour-per-day basis.



The centrifuge with the horizontal mixer beneath it feeding into the drying-fan below. The large pipe encircling the column in the foreground carrying the heat from the calcining furnace to the drying-fan may be seen to the right of the column. Square diagonal pipe above centrifuge is for lime return.

Labor Needed

The cost of labor per ton of lime depends on the size and location of the plant. A full-time operator is necessary at Marshalltown, because the calcining equipment is installed in a separate building about 200 feet distant from the softening plant. Then, because of certain other inconveniences, 4 hours of labor are charged against a ton of lime. If the calcining equipment could be installed adjacent to, or designed as an integral part of a softening plant, the same operator in charge of softening could easily operate the calcining processes. In such a case, the cost of labor per ton of lime could be reduced to 2 hours or even less.

Because the physical characteristics of waste-lime sludge are so different from that of natural limestone, it should be evident to everyone that it would cost more to drive off the carbon dioxide from a dense sludge than porous limestone. Therefore, the two processes cannot be considered competitive in the strict sense of the word. Calcining sludge should first be considered as a method of sludge disposal. But on the other hand, if the cost of producing a ton of lime from waste sludge is less than the cost of new commercial lime plus the cost of disposing of the sludge by any other method, then calcining should also be considered as economical.

Saves $1.00 per Ton

At Marshalltown, lime is produced in a badly cut up and unhandy experimental plant for $1.00 per ton less than the cost of commercial lime. So as far as Marshalltown is concerned, calcining is not only economical, but it definitely eliminates a sludge disposal problem. Many cities, regardless of size, should be able to do as well.

Fort Thomas Has A Plan

New private housing for veterans in Fort Thomas. Most of the city is on a bluff overlooking the Ohio River. Seen on the road is one of the city's modern garbage collection units, a Gar Wood "Loadpacker" on a Mack chassis.

FORT THOMAS, Ky. (estimated population, 12,000), has a plan for progress. It includes a stadium, a city swimming pool, an auditorium, a city building, a library, and additional playgrounds. The stadium, financed by a $65,000 bond issue voted in last November's election, will be ready by the fall of this year. The swimming pool, to be located in a new 60-acre city park, is on paper and ready for construction. The estimated date of completion is the summer of 1949.

The other items of the city's overall program are scheduled for definite completion dates. The plan takes a realistic view of needs, costs, and problems of accomplishment.

There are several outstanding features of the Fort Thomas plan:

First, *it is noteworthy because it came about by citizen action in a city which might well have rested complacently on its laurels.*

Secondly, *it was brought about by cooperation between citizens and government.*

Finally, *once determined, the plan has moved steadily forward, without fanfare, toward its eventual realization.*

Fort Thomas, located in northeastern Kentucky's Campbell County, has been called "one of Cincinnati's bedrooms." It is a residential city, beautifully situated upon high bluffs overlooking the Ohio opposite Cincinnati. The character of its residents assures it a high rating in such categories as education (it is above the national average); religion (its churches exert positive influence in the community); recreation (its Teen Canteen was citizen-financed and is self-supporting); culture (it has a newly formed civic music association); and city services

By FRANCELE H. ARMSTRONG*

(police and fire protection, etc.). Further, there is a low incidence of crime, delinquency, and many of the ills which characterize an industrial area.

However, the very strength of such a residential city is its inherent weakness. There is a danger that smugness may take over, that complacency may become the order of the day. Fort Thomas' situation is further complicated by its physical layout—stretching 5 miles along the Ohio bluffs, it measures but 1½ miles at its widest spot. This makes for breathing space, but complicates the problems of maintaining city solidarity.

Complacency Battled by Community Organization

Fort Thomas has refused to allow the rigor mortis of complacency to set in. At present it is moving forward by means of a citizens' cooperative organization called the Committee for Fort Thomas, a group made up of representatives of some 34 civic organizations, plus a number of citizens elected at large.

The Committee for Fort Thomas, an affiliate of the Committee for Kentucky, took its pattern from that state organization, which embraces representatives of 87 state-wide groups. The aim of the state committee is to improve conditions in Kentucky on an over-all basis which includes agriculture, health, welfare, industry, government, the community, labor, taxation, education, transportation, housing, natural resources, and the state constitution.

The antecedent of the Committee for Fort Thomas was the Fort Thomas Post-War Planning Committee. Its executive committee was formed of two representatives each from the city council, the board of education, and the planning commission, and one from the recreation committee. The Mayor served as chairman, and the City Engineer as secretary.

Behind the Post-War Planning Committee was the experience gained in a well-organized civilian defense setup.

Ingredients for Citizen-Municipal Cooperation

The cooperation which exists in Fort Thomas between government and citizens did not spring up overnight like a Magic Lily. As already stated, a necessary ingredient is a non-complacent, wide-awake citizenry. Further necessities are municipal officials to complement this high type of citizen and a form of government suited to the needs of this combination.

Fort Thomas operates under a fourth-class councilmanic form of government, with a mayor and six councilmen elected at large. All other officials except school board members are appointive. Partisan politics have never entered into city elections. Although the city has never voted on a city-manager form of government, its present set-up resembles that type because the city engineer, a full-time city employee, is the force that operates to maintain a continuity of means and methods of government.

This continuity is essential to municipalities such as are found in Kentucky, where the salaries of elected officials are not sufficient to allow the men, however interested and willing, to spend more than part of their time on the city's business.

* Francele H. Armstrong is a columnist on the Henderson (Ky.) *Gleaner and Journal*. She does volunteer work for the Committee for Kentucky as editor of "Your Community Reporter."

In Fort Thomas, the city engineer officially looks after the streets, sewers, garbage disposal, parks, buildings, traffic, utilities, construction, etc. Unofficially, he is the means by which citizens and government keep up a continuous cooperative understanding of each other's problems.

Charles Kuhn, city engineer since 1930, and assistant engineer for four years prior to 1930, acts as secretary to the Planning and Zoning Commission, the Board of Adjustment, and the Playground and Recreation Board. He is ex-officio member of the executive committee of the Committee for Fort Thomas, sitting in on all meetings in an advisory capacity. He was the Committee's representative to the National Conference on the Community, held at West Point, N. Y., last October.

The method used by the Post-War Planning Committee to stimulate planning action was simple and practical. First, the executive committee decided upon a survey questionnaire as a means of arriving at a popular decision regarding post-war projects. The questionnaire was publicized in newspapers, schools, church bulletins, and talked about in civic organizations and open forums. It was mailed to men and women of Fort Thomas in the forces.

Local distribution was accomplished through the Girls Service Corps of the high school, who gave them out and collected them a week later.

The results formed the basis of the present city plan for progress. Young and old alike agreed upon the first six choices—a stadium, auditorium, public library, city building, swimming pool, and additional playgrounds.

Thus the citizens conveyed to the city officials their blueprint for civic progress.

Having fulfilled its mission, the Post-War Planning Committee thought it necessary to devise some sort of continuing organization. Recognizing the need for additional citizen cooperation, Mayor L. L. Ross and city officials called together, in January 1946, representatives of civic, religious, educational, social, and cultural groups to consider the future needs of the city. An organization was formed, and the name Committee for Fort Thomas subsequently adopted. This group, composed of representatives of 34 member organizations, began immediately to function as a unit of the Committee for Kentucky, although affiliation was not completed until later.

The Committee for Fort Thomas worked out its problems of membership, elections, by-laws, constitution, etc., and adopted the aim: "to promote and safeguard the general welfare of the city of Fort Thomas, Kentucky, by studying the local conditions and making suggestions and recommendations to the proper authorities."

Time Shows Continued Progress

Now in its third year, the Committee for Fort Thomas, though somewhat sobered in enthusiasm, is still plugging on its problems. It can claim definite accomplishment in having campaigned successfully for two issues voted upon last November—the stadium bond issue and a constitutional convention for revision of the state constitution. Though the latter failed to pass in the state, the Fort Thomas vote was favorable.

Another accomplishment of the Committee is found in the five educational reports, prepared by teachers, supervisors, and administrative staff of the schools in cooperation with the Committee for Fort Thomas. These reports, mimeographed and distributed through the school system, were attractively illustrated by students of the art departments. They followed the general pattern of the education report compiled for the Committee for Kentucky, comparing local accomplishments, equipment, and curriculum with that of the state and nation.

The Committee for Fort Thomas is also actively at work on a program for the extension of hospital service in Campbell County.

Reserve Funds Aid City

In 1944 the city engineer estimated the costs of Fort Thomas' long-range plan at $589,000. Two reserve funds were set up in 1944 under the act sponsored by the Kentucky Municipal League, one for equipment, the other for public-works improvements. Though these funds will not finance large improvements, they help the city to keep an even keel in the financial seas.

The Community Survey recommends staggering the projected buildings and improvements of the Fort Thomas plan so that the swimming pool and stadium will be liquidated, the interest and sinking funds reduced, and the structures self-supporting, before further construction is attempted. Completion of the other items is scheduled as follows: public auditorium by 1953, and city hall and library by 1957.

It is a long-range plan, but, with the cooperation and clear thinking evident in Fort Thomas' program, it seems more than likely to succeed.

WHERE HAS YOUR CITY TAX DOLLAR GONE??

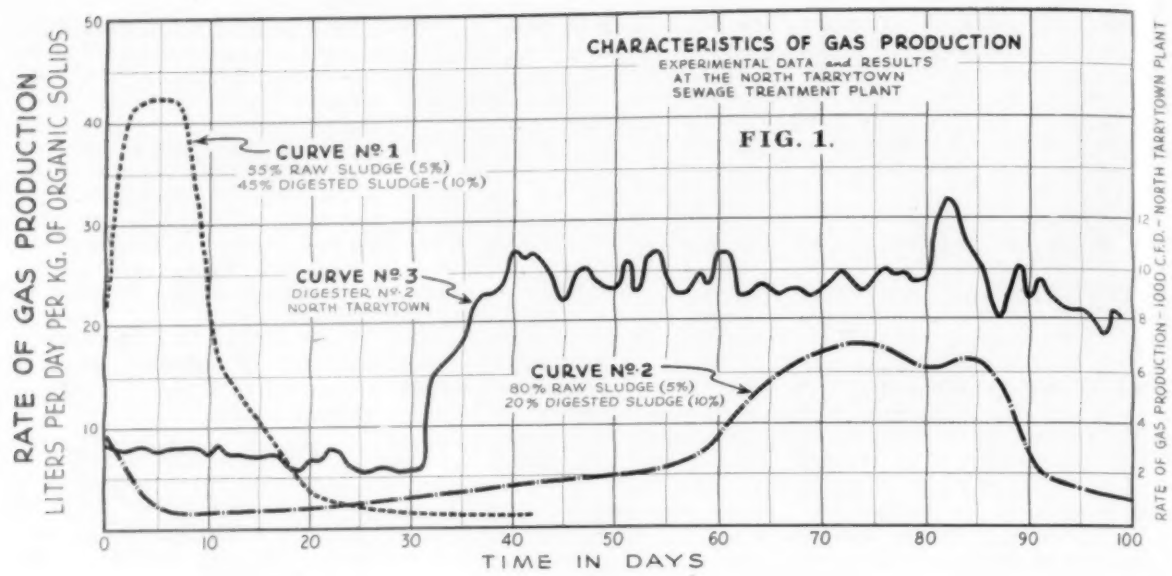
1947 BUDGET FOR CITY SERVICES

SERVICE	Total Cost	%	MONTHLY COST Average Per Family	MONTHLY COST $5,000 Tax Assessment	Approximate Equivalent of Column 4.
	1	2	3	4	
Police Protection	$ 30,820	21.14	$ 0.86	$0.63	A Padlock.
Waste Collection and Disposal	25,871	17.74	0.72	0.53	½ Pound of Candy.
Street Maintenance	23,778	16.31	0.66	0.49	7 Street Car Tokens.
Fire Protection	19,956	13.68	0.56	0.41	2 Gallons of Gasoline.
Administration and General Exp.	17,432	11.95	0.49	0.36	2 Packs of Cigarettes.
Street Lighting	11,630	7.98	0.33	.24	3 Flashlight Batteries.
Recreation	4,150	2.85	0.12	.09	2 Newspapers.
Sanitary Sewer Maintenance	3,405	2.34	0.10	.07	A Cheap Cigar.
Engineering	2,600	1.78	0.07	.05	A Candy Bar.
Municipal Building Maintenance	2,540	1.74	0.07	.05	A Pack of Chewing Gum.
Welfare	1,900	1.30	0.05	.04	An Air Mail Stamp.
Parks	1,740	1.19	0.05	.04	A Small Coca-Cola.
TOTAL OPERATING BUDGET	$145,822	100.00	$ 4.08	$3.00	10c Per Day.
BONDS—DEBT SERVICE	33,680		0.94	0.83	Less Than 3c Per Day.
TOTAL CITY BUDGET	$179,502		$ 5.02	$3.83	About = to your Electric Bill.
TOTAL SCHOOLS	180,640		5.05	4.17	Less Than Phone Service.
TOTAL CITY AND SCHOOL	$360,142		$10.07	$8.00	About 26c Per Day.

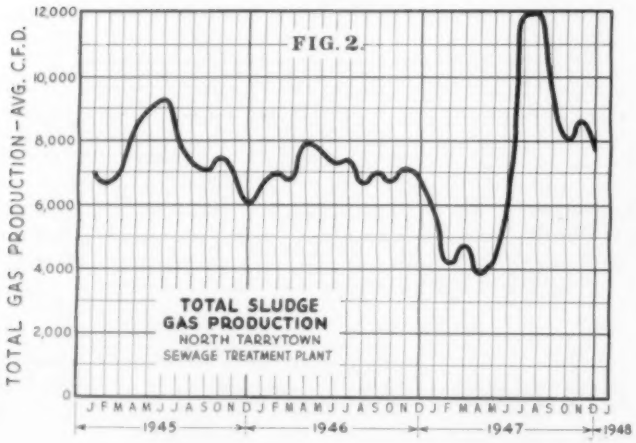
When you consider all of these services, and compare them on a monthly basis like most bills are rendered, can you think of any other dollar for which you get as much?

Tax Rate		%
$0.72	City General Fund	37.5
.20	City Sinking Fund	10.4
.92	City Total	47.9
1.00	School	52.1
$1.92	Total City and School	100.0

As well as preparing the Fort Thomas annual report, the city engineer further cements the relationship between government and citizen by distributing each year leaflets mailed with the tax notices, highlighting the year's developments. The table above is from the 1947 leaflet and translates the cost of municipal services into items of everyday expense.


CHARACTERISTICS OF GAS PRODUCTION
EXPERIMENTAL DATA and RESULTS
AT THE NORTH TARRYTOWN
SEWAGE TREATMENT PLANT
FIG. 1.
CURVE Nº 1
55% RAW SLUDGE (5%)
45% DIGESTED SLUDGE-(10%)
CURVE Nº 3
DIGESTER Nº 2
NORTH TARRYTOWN
CURVE Nº 2
80% RAW SLUDGE (5%)
20% DIGESTED SLUDGE (10%)
RATE OF GAS PRODUCTION
LITERS PER DAY PER KG. OF ORGANIC SOLIDS
RATE OF GAS PRODUCTION - 1000 C.F.D. - NORTH TARRYTOWN PLANT
TIME IN DAYS

Dead Digesters



Experience at the North Tarrytown, N. Y., sewage-treatment plant last summer shows how to revive them by using ammonia

IN THIS changing age we often find new processes, such as the atomic bomb's nuclear fission, that threaten to render old systems obsolete before they have outlived their normal usefulness. Before being dazzled too much by these spectacular developments, it is instructive to look at devices and methods that change little. The electric motor with an efficiency of 90% is an example. For the duration of eternity, not more than 10% improvement can ever be attained in this type of energy conversion. But we can improve its application.

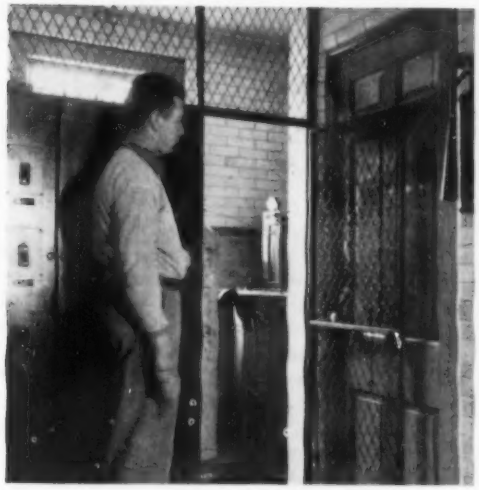
Similarly, in the field of sanitary engineering, the *principles* of anaerobic sludge digestion have changed little in the last two decades. The *application* of these principles, however, has improved. Today we provide better insulation for digesters, pre-heat and seed the raw sludge, improve the location of heating coils, provide multiple inlets for sludge discharge, and do many other things to make the life of the anaerobic microorganisms more profitable.

What happened at North Tarrytown's sewage-treatment plant illustrates this. Here, we had a pair of digesters that had virtually "died"—that had developed such a poor environment that the useful anaerobes no longer could perform their tasks. We corrected this difficulty, not by resorting to some revolutionary process, but by applying conscientiously and thoroughly the proven principles that we knew were in existence.

Sludge Digestion Fundamental

Before seeing what happened in North Tarrytown's digesters, let us briefly examine those principles of sludge digestion. As is well known, fresh sludge has a pH of around 7.0. If the solids are stored in the hopper of a sedimentation basin for some period—say 12 to 24 hours—putrefactive bacteria, normally present in all fresh domestic sewage, begin breaking down

By THOMAS M. RIDDICK
Consulting Engineer
New York, N. Y.



Chief Operator Ed Conlan shows the location of the ammoniator which was used to revive the dying digesters.

a portion of the sewage solids into various organic acids. These bacteria exist in acid media. They are not methane producers; they allow the sludge to decompose slowly and malodorously.

This, of course, is not what we are looking for in sludge decomposition. We want it to break down into an inert, humus-like material, readily dewatered, free of objectionable odors, and useful for fertilizer if desired. We can do this by adding some alkali, or by diluting it with digested and well-buffered sludge that inhibits and destroys the putrefactive bacteria and promotes the growth of the methane-producing type.

This is about the gist of 25 to 50 years of observation and research on the subject. Furthermore, few of us anticipate any changes in the habits of the bacteria involved, and consequently do not foresee any great changes in the digestion processes.

How the Plant Operates

Before observing how these processes apply to the North Tarrytown plant, let us look at the plant itself. It provides primary treatment and has a capacity of 1.7 mgd. It now operates at approximately half this value. As the sewage enters the plant, it is chlorinated, metered by passing through a Parshall flume, and then passes through a Chicago comminutor that reduces the size of all large particles.

The sewage then flows to a pair of rectangular settling tanks equipped with Link-Belt collectors mechanisms. The sludge that settles here is pumped to two digesters with PFT floating covers. The digested sludge is dewatered on glass-covered drying beds. The final effluent is chlorinated during the summer months and is discharged into the Hudson River.

The plant went into operation in August 1940 and immediately demonstrated the soundness of sludge-digestion principles. Raw sludge was added

The North Tarrytown plant was designed to approximate Hudson River Valley architectural lines, blending symmetrically into background.

The North Tarrytown plant and the digesters that had so much difficulty handling the mercury trade wastes. Beyond, in the gray mist, is the Hudson River that receives the treated effluent.

to the digesters without proper seeding, and without the addition of an alkali. The result, of course, was a septic, or acid, condition that produced odors so rank that near-by residents protested strenuously. As indicated, the operators were able to correct this difficulty by adding lime, and obtained good digestion in about two months. From this period forward, conditions were normal, and gas production averaged approximately 7,000 cubic feet or about 1.0 cf. per capita per day.

However, in January 1947 average gas production decreased to 5,400 cubic feet per day. In February it dropped to 4,100 and in April it slid to 3,800 cfd. The pH of the stored sludge in the digesters decreased from 7.3 to only 5.5. Obviously something was wrong.

High pH Caused by Metals

Plant records indicated that occasionally the raw sewage had an exceedingly high pH. Furthermore, in late May the writer made a detailed investigation of samples collected from sewers near an industrial plant. These disclosed still greater values, ranging as high as 9 or 10. Nevertheless, the writer did not believe that high pH of sewage from one single industry could be the sole cause of the digester upset, since the volume of sewage from this plant was relatively low, and the dilution with domestic sewage was high.

A detailed study disclosed the real reason for the digester upset. The industrial waste contained metallic zinc and metallic mercury, metals that are both highly toxic to bacteria. It was necessary to construct immediately a separate drain for all the plant's industrial wastes. This prevented future problems, but did not prevent the steady decrease of anaerobic bacteria, caused by zinc and mercury poisoning.

Since the sludge in both digesters was quite septic, the superintendent gave serious consideration to dumping the contents into the Hudson. This idea was abandoned, however, as not in keeping with the standards that the plant was trying to maintain. We decided instead to "save" the digesters if possible.

Ammonia Tried for Relief

To perform this life-saving job we looked to the literature and to the writer's own research. In 1931, Heukelekian stated in a summary of pH control, ". . . the addition of lime to unseeded solids accelerates the rate of digestion by at least 25% and causes an increase of 16% in the yield of gas." At about that time, the writer began a series of experiments to determine whether ammonia offered any advantages over lime for raising or maintaining the pH of digesting domestic sludge. Indications were that it did.

Consequently, we decided to try this latter method of attack to resuscitate our dying digesters. We installed an ammoniator at the plant. One of the digesters was taken out of service and fresh sludge was pumped to the second. The contents of both were recirculated two hours daily at a rate of 50 gpm. This provided an overturn of 6,000 gallons, or 5% of the tank contents. During these pumping periods, about 2 pounds of ammonia in the gaseous form were added. The rate of addition was 25 pounds per 24 hours, equivalent to 40 ppm of NH_3.

Experiment Is Successful

The results were most encouraging, as indicated on the graph on page 82. Curve No. 1 shows typical gas production from 55 parts of fresh sludge seeded with 45 parts of well-digested sludge. The digesters were agitated daily and maintained at a temperature of 85° F. In this experiment the proportion of fresh sludge was so low, and the proportion of digested sludge so high, that gasification began immediately, and was 90% complete in 20 days. Only four days were required to achieve pH control by the addition of ammonia, and this was not strictly essential.

We then repeated the experiment and obtained results shown on curve No. 2. Here the raw-sludge content was increased from 55% to 80%, and the digested sludge was decreased from 54% to 20%. This represents the condition of a badly overcrowded digester or a digestion tank that has "gone septic."

The pH dropped immediately to 5.2 and the sludge required daily adjustments with ammonia for 14 days. After this period, no further alkali was required to maintain or to raise the pH. The gas production was low, however, and increased only slightly for a period of 58 days. Gas production then rose rapidly, reached a maximum on the 75th day, and tapered off to about "90% completion" on the 100th day.

Time Element Required

It is interesting to note that pH was maintained without further addition of ammonia after only 14 days, whereas gas production was only slight for the first 50 days of this experiment. This condition may be envisaged in its most elementary form as a 14-day period for inhibiting or killing off the acid-producing bacteria; whereas about 55 days, or 41 days additional, were required to create the proper environment and concentration of methane-producing bacteria. Thus, when you are attempting to rejuvenate a "dead" digester, you cannot expect gas production to begin immediately after the pH has been brought to or past the point of neutrality.

Results of these experiments with ammonia were applied to the rejuvenation of the "dead" tank. Curve No. 3 shows gas production of this digester. The addition of two pounds of ammonia per day resulted in stabilization of the pH in about 15 days.

Gas production, however, did not improve until 31 days after the application of ammonia. For 30 or 40 days, the rise in gas production was pronounced, and this high rate was maintained for the succeeding 45 days. This indicates that accumulated solids were being digested and were producing an excess of gas.

Figure No. 2 shows that the gas from the two digesters for 1944-45 averaged about 7,000 cubic feet per day. This decreased in the early spring months of 1947 to about 4,000 cubic feet per day. The application of ammonia raised this to 12,000, considerably more than ever before obtained. This was caused by delayed digestion, and the excessive gas produced amounted to approximately the deficiency which occurred during the period of poor digestion. Indications are that digestion processes are now normal, and that the rate of gas production has leveled off at about 8,000 cubic feet per day.

What the Work Shows

The operation of the North Tarrytown plant during this difficult period therefore discloses that when digesters are overcrowded, where septic action has set in because of trade wastes, or where gas production is low, some type of alkali is definitely desirable.

It further indicates that the use of ammonia seems superior to most water-soluble alkalis, or to lime, because of the ease with which it can be applied and its high rate of diffusion.

In the past gas production at this plant has been insufficient for heating both the building and the digesters. This deficiency during the winter months amounted to about 1,000 cubic feet of gas per day, and this quantity had to be purchased from the local gas company. If the continued application of ammonia does not result in the production of at least an additional thousand cubic feet of gas, then the writer is seriously considering taking steps to retard digestion this summer and fall, and then correcting this condition to obtain the additional thousand feet per day from December through March.

The writer wishes to acknowledge with thanks the helpful assistance in the work of A. E. Kassay, Superintendent of Water and Sewage, and his operators, Fred Gross and Ed Conlan.

Seattle's Streamlined Street Flusher

By J. ROBERTSON
Supervising Senior Engineer
Seattle, Wash.

SEATTLE'S present fleet of seven street flushers now includes four flushers designed and built to incorporate engineering improvements that we feel definitely improve flusher performance.

The city has used street flushers for many years as the main medium for street cleaning. This type of equipment lends itself admirably to this purpose by reason of the fact that the city is built on and around numerous hills. Our heavy grades, therefore, are ideal for moving street litter by water, and the fact that we have an ample supply of water encourages flusher use.

War Toll in Seattle's Flushers

Before the war, the department operated five flushers in our street-cleaning service. Mechanical breakdowns, caused by equipment age, gradually depleted our usable fleet. In 1945 we were able to purchase two new units, and now, with the acquisition of the four additional ones, we have a fleet of seven flushers available for single or double shift as needed.

The units, as manufactured, consist of a fully streamlined job, with the pump and motor unit mounted in the rear compartment. We prefer the rear-mounted units from the standpoint of better weight distribution, and more accessibility for maintenance repairs. The truck chassis used in the new units is a Kenworth with 32,000-pound gross vehicle weight. The tank, of 1,800-gallon capacity, built of 12-gage rust-resistant steel, was fabricated here in the Puget Sound Sheet Metal Works. The pump used is a 750-gpm Pacific Pumping Company unit powered by a Chrysler industrial 6-cylinder gas engine of 140-cubic-inch displacement.

In fabrication, we eliminated all possible bends in the piping and used ground-welded bends where they were required. In this manner we cut friction losses to a minimum. Our tests show that without working the motor to capacity we can attain the maximum of 80 pounds' pressure with one flusher shoe open. We designed the units to attain a pressure of 50 pounds with three shoes operating, and this we also accomplish without overworking the motor.

All controls are mounted on the truck dashboard and thus are readily available to the driver and the helper. Safety installations, such as oil warning plugs and water-temperature warning plugs, have been incorporated in the construction, and warning lights are installed on the dash, furnishing maximum protection to the units.

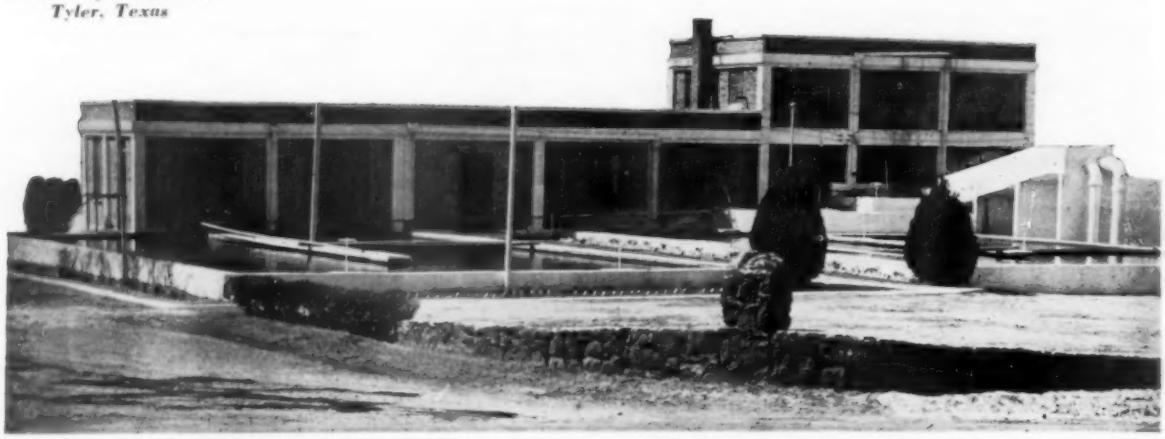
Before we reached the decision to fabricate the units in our own shops, bids were entertained on manufactured units; these were rejected mainly because none of the units submitted answered the specification upon which the bids were asked.

If the occasion dictates, the flusher will furnish a stout fire stream.

There is plenty of push at the spray nozzles in this flusher designed to the Seattle specifications.

Painless Payment For Water-Main Extension

By J. M. LLOYD
Water Superintendent
Tyler, Texas



A general view of the Tyler filtration plant located at Bellwood Lake.

Tyler, Texas, develops a water-main extension plan for new residential areas that is attractive to the developer and doesn't burden municipal water and sewer services

ALL growing cities are confronted with the problem of providing adequate water and sewage facilities for domestic, industrial, and real-estate uses. This is a major problem for the smaller cities. The problem is not understood by the general public, especially that part engaged in developing acreage heretofore lying idle. The cost of providing water and sewerage facilities must be borne with the assistance of the developer if the municipal department is to remain financially self-supporting. It is almost impossible for the water department of any city to have sufficient funds to keep up with accelerated developments that have been encountered during recent years.

In 1944 the Federal Government located and constructed Camp Fannin nine miles away. Since the camp was located near Tyler, the civilian personnel, as well as the personnel required to construct the unit, caused an increase in the population of Tyler to approximately 35,000. There is no need to recount what this meant to housing in Tyler. The camp, while it produced a temporary boom, seemed to offer the eventuality of a post-war bust. Tyler businessmen refused this dictum. They formed what is now called an Industrial Foundation, which operates as a non-profit corporation, raised an operating capital of approximately $300,000, and endeavored to bring industries to Tyler. Under the leadership of Wilton J. Daniels and Thomas B. Ramey, they brought several. It is the Foundation's practice to buy the land and construct buildings for each manufacturer, leasing the buildings for periods of 10 or 15 years, with an option to buy at any time. Most of the manufacturers have taken up the option.

Tyler's rapid growth and expansion have created a drain on its financial resources in connection with serving the many real-estate developments with water and sewage facilities.

The policy, which was followed for a number of years by the city in the laying and construction of the water and sewer mains for real-estate developers, was as follows:

1. The city laid all mains for a distance of 150 feet without charge to any real-estate developer.

2. If the developer built on every other lot, there would be no charge made for this extension work.

3. If an extension required more than 150 feet, or if a large addition was being developed, all water and sewer extensions were made without cost to the developers provided there were a number of houses under construction which would justify the total distance of the mains to be run.

In other words, a distance of 1,500 feet of main would be run if 10 building permits were taken out for that many houses to be constructed in that total distance. At the same time, it was necessary for the city to install fire protection for these areas. If the distance was more than 150 feet and only one house was constructed, then the property owner or real-estate developer would have to put up the difference between the cost of laying 150 feet of pipe and the required distance. When additional water service was connected to the extension, he would be allowed $30 for each water connection and $20 for each sewer connection until the contract was consummated.

Since the price of pipe has gone up from approximately 90 cents per foot

on 6-inch cast iron to $1.36 per foot, and the rate for common labor has doubled, it can readily be seen that the cost of installing water and sewer mains under the former policy would cause a drain on the financial resources of the city. During the year 1947 through September 30, or the end of the fiscal year, the budget showed over $50,000 overdraft.

New Policy

Before then, joint meetings were held by the City Commission and City Manager J. G. Rollins to prevent going in the "red" each year. Briefly, the policy adopted October 1, 1947, is as follows:

1. The City of Tyler at its own expense constructs or extends water and sewer mains to serve any property in the city when such construction or extension will require 100 feet or less of water or sewer line. If an owner or developer requests more than one connection within a period of one year, the total water- and sewer-line extensions shall be considered. If the total shall exceed 100 feet, the applicant will comply with the requirements of Section 2.

2. Where more than 100 feet of line is required, the person to be served (owner or developer) shall advance the cost of the construction or extension with the following understanding:

   a. He, the owner or developer, shall present a map or drawing showing the property to be developed.

   b. Upon receipt of the map or drawing, the City Engineers will lay out the required water and sewer lines. They will determine the number of lots that will be served in the development. They will also prepare an estimate of the cost to construct the water and sewer mains with necessary valves, fittings, fire hydrants, and manholes.

   The estimate will be based on 6-inch and 8-inch lines, whichever is required to serve the area properly. If, because of other developed areas, it is necessary to have water or sewer mains of a diameter greater than 8 inches, such cost in excess of a 6- or 8-inch line shall not be included in the estimate prepared for the owner or developer. Such excess cost will be paid for by the city.

   c. Any subdivision or private development in which the owner or developer is required to advance the cost of water and sewer lines will be covered by contract. The contract will stipulate that the development shall be completed within five years from date of contract. The contract shall also provide that the owner or developer shall deposit with the city the amount of the cost of the construction or extension of water and sewer lines and appurtenances as estimated by the City Engineers.

METHOD OF REINBURSEMENT FOR MONEYS ADVANCED

Year		1	2	3	4	5	6	7	8	9	Totals
Lots Developed		10	5	2	5	3					25
Total Earned Refund..		$1,000	500	200	500	300	...	...	...	...	$2,500
Reimburse by year	1	200	200	200	200	200	...	...	...	...	1,000
	2	...	100	100	100	100	100	...	...	...	500
	3	...	...	40	40	40	40	40	..	...	200
	4	...	...	...	100	100	100	100	100	...	500
	5	...	...	...	...	60	60	60	60	60	300
Total		$200	$300	$340	$440	$500	$300	$200	$160	$60	$2,500

Provisions of Contract

The contract shall provide that the owner or developer shall have five years from date of contract in which to develop this property, and that the city shall reimburse the owner or developer for money advanced in the following manner:

The city will divide the total money advanced by the number of lots to be developed, the result being the proportionate part to be returned for each lot developed. The total money advanced and number of lots to be developed shall be as shown on the City Engineers' estimate and report. The city will, one year from date of contract, determine the number of lots that have been developed through the first year of contract. This number, multiplied by the amount to be reimbursed for each lot, will determine the amount to be returned as a result of the first year's development.

The city will refund to the developer the fixed amount for each lot developed and connected to the city water and sewer lines. The refund payments will become due and payable at the end of each year from contract date. The payments will be over a period of five years. The first payment will be for one-fifth of the earned refund, and shall be due and payable one year from date of contract. The second, third, fourth, and fifth payments shall become due two, three, four, and five years, respectively, from date of contract. One-fifth of the development cost during the second, third, fourth, and fifth years of the contract shall become due at the end of the contract year, in which it was developed, and at the end of each of the next four years.

Th contract will include the provision that the City of Tyler shall never be required to refund to the owner any part of the cost advanced for any lot or lots which have not been developed and connected to the water and sewer lines of the city on the last day of the fifth year from date of contract.

The table shown here outlines the method and manner of reimbursing the owner or developer for moneys advanced. The table is based on a five-year development plan, assuming a subdivision containing 25 lots. Total cost for water and sewer lines, $2,500—cost per lot, $100.

This policy encourages the real-estate developer to open up only those areas that can be developed, for he will not be reimbursed the money advanced on lots that have not been developed within the contract period. It tends to force compact and full development of areas, which in turn aids in getting the maximum service out of the minimum amount of pipe. At the same time, the city profits in that the lineal distance of streets is shorter if the development is compact.

The main benefits from the policy adopted by this city is that the developer helps cushion the financial shock occasioned by his own development. The city, of course, will reimburse the developer in the full amount of money advanced, but the fact that the payments are spread out over a number of years enables the city to recover money from service rendered in an amount to make a partial payment of the first cost.

Showing Water Superintendent J. M. Lloyd (right), and former Assistant Water Superintendent C. J. Phillips.

Puerto Rico Develops Hydro Power

ELECTRIC power is becoming less expensive to cities in Puerto Rico through the construction of the new $10-million hydroelectric power-generating facilities. This project, governmentally sponsored, will provide a network of modern generating stations that will make it possible to use the water power already available there rather than to ship in expensive oil from Trinidad.

Water Resources to be Unified

Two of these hydro projects, Garzas and Dos Bocas, have already been completed, and the largest, Caonillas, will probably be in operation some time next year. Caonillas already was in the preliminary stages of construction, only to be sidetracked because of war-induced shortages. When completed, it will give Puerto Rico 18 units capable of producing enough electrical energy to meet present requirements, 400 million kwh per year. However, more is anticipated because of the favorable policies that the insular government has adopted toward industry.

The project is part of the development work of the Puerto Rico Waters Resources Authority. Plans of the Authority are to unify all water resources of the island for hydroelectric power, irrigation, and water supply for both rural and urban areas. All this is being accomplished on a pay-as-you-go basis. Funds become available through the sale of power, short-term financing or other methods.

More Reserves Available

A survey of water reserves for this island indicates that with the completion of the Caonillas project only slightly more than half the island's total potential will have been harnessed. Numerous streams are capable of producing 700 million kwh yearly. According to present plans, all of the island's water power can be harnessed and put to use by 1970.

The program is under the direction of Antonio Lucchetti, Executive Director of the Water Resources Authority. The Chief Engineer is Carl A. Bock, at one time associated with the TVA and other water-control programs.

Caonillas Dam, largest of the projects, nears completion.

Dos Bocas dam is one of Puerto Rico's hydroelectric developments that promises more economical electricity for the island country's cities.

Sewer Service Charges – How They Work

Fifteen cities list their sewer-service charge practices and tell briefly how they work

By **WILLIAM S. FOSTER**
Engineering Editor

SEWER-SERVICE charges, one of the most prominent of the revenue raisers that help lift the load from the back of the real-estate tax, seem to be going through a formative change. Originally installed to help ease the tax burden, they now appear to be headed toward the goal of putting sewerage service on a self-supporting basis, just as water meter rates have done for water service.

Rates Based on Fixtures

WILMINGTON, N. C.—Just as the water rates were first drafted on the basis of the number of faucets or some similar rule, and electric rates were based on the number of light fixtures, today in many cities sewer-service charges are based on the toilet and other household fixtures. Wilmington, N. C., is an example. Its charges are:

60c per toilet per quarter
30c per fixture per quarter
$75 maximum charge per building

W. F. Evans, Jr., Superintendent of Wilmington's water and sewerage department, reports that the service charge has been in effect for many years, and was only recently raised to its present figure. The revenue thus obtained is used for the operation, maintenance, and amortization of the water and sewerage systems. The sewer-service charges produce approximately 25% of the revenue obtained from the water rates. Mr. Evans feels that the fixture method is a fair system of charging for sewer service to domestic users. However, he feels that commercial users should be placed on a percentage of the water bill to make an equally fair charge against them.

ITHACA, N. Y.—This city also makes a type of flat-rate service charge. George D. Carpenter, Superintendent of Sewage Treatment, reports these charges:

Single houses outside city	$ 15 per year
Double houses outside city	25 " "
24-apartment buildings	60 " "
48-apartment buildings	120 " "

ATHENS, GA.—Athens also holds to the fixture method and limits a charge to water toilets. The first of these is charged at $5 per year. The second has no charge against it, and each additional is charged at the rate of $1 per year.

J. G. Beacham, Athens' city engineer, reports that he does not know how the charge originated, since it has been in use for a great number of years. Old city records disclose the money so raised was to be applied against the retirement of sanitary-sewer bonds.

Rates Based on Metered Water

In general, when the city management changes to the system of charging for sewer service on the basis of metered water used, its system takes on a healthier condition. There is enough precedence for this change. Robie L. Mitchell probably expressed it best when he argued successfully before the Florida Supreme Court that water and sewage services essentially were interdependent, contending the one could not exist without the other.*

LA PORTE, IND.—In any case, the charges made by LaPorte are indicative of this method. John E. Hupp, Jr., City Engineer, reports these figures, which are approximately half the water meter rates:

First 30,000 gals.	5c per M gals.
Next 60,000 "	4c " " "
Next 120,000 "	3½c " " "
All over	3c " " "

Minimum charges vary from 30 cents for a ⅝-inch meter to $5 for a 6-inch meter, and all charges are on a monthly basis.

Mr. Hupp further reports that the sewage-treatment plant had $138,000 of 4% revenue bonds issued against sewage revenues. The bonds amortize in 20 years. The city has operated the plant for 10 years, and now has approximately $60,000 in cash in a depreciation account, and has paid all operating and maintenance costs. The plant originally cost $250,000.

GRAND JUNCTION, COLO.—Grand Junction has a sewer rental charge amounting to only 15% of the water bill. This was established by ordinance on April 1, 1940. The minimum bill is $3. Industrial water bills may be adjusted to conform to a reasonable sewer-service charge in the event that water use is out of balance with sewer use.

This 15% rate will return approximately $21,000 during 1948. Grand Junction is contemplating a water-rate increase amounting to as much as 30%, which, naturally, will be reflected in sewer revenues.

The income thus derived from sewer rentals is used first for "management, operation, and maintenance" of the sewerage system, including the plant. Surplus may be used to pay bond interest and principal charges. The Grand Junction system has been run as a utility since 1940 and no general levy has been made to support its operation.

OXNARD, CALIF.—This city also has a sewer-service charge based on metered water rates. O. L. Isham, Superintendent of the municipal water department, reports the charges in his city are as follows:

First 500 feet ..... 50c minimum
All over ..... 2c per 100 cu. ft.

The city also has a detailed flat-rate system used for those homes or establishments that do not use the city water supply. The rate was established by estimating the amount of money needed to operate and maintain the sewage-works system. It was then determined that a charge of 50 cents per month per family and 2 cents per hundred cubic feet per month for industrial users would yield adequate funds.

PERU, IND.—Peru also charges for sewer service on the basis of metered water use. The rates are as follows:

First 1,000 gals.	25c per M gals.
Next 9,000 "	12c " " "
Next 10,000 "	10c " " "
Next 10,000 "	8c " " "
Next 970,000 "	7c " " "
Next 1,000,000 "	5c " " "
All over	3c " " "

* See "Sewer Revenue Financing," THE AMERICAN CITY, November 1946.

Irel V. Pence, Superintendent of Public Works, reports that it has been nip and tuck to meet adequately the costs of operation, maintenance and amortization out of these funds since the plant was put in operation in 1940. However, the rates are designed to do this.

Industrial Waste Factors

FORT DODGE, IOWA — This city has a sewer service charge that is based, to a degree, on the strength of the sewage contributed. The Fort Dodge ordinance establishes two rates as follows:

CLASS I

First 500,000 gals.	6c per M gals.
Next 500,000 "	5c " " "
Next 500,000 "	4c " " "
All over	3c " " "

CLASS II

For all contributed .... 7c per M gals.

DOMESTIC OR OTHER

Single rate ..... 6c per M gals.

Class I industries refer to those establishments whose sewage is normally in the range of 200-500 ppm of five-day BOD and in general includes laundries, dry cleaners, oil stations, car-washing stations, and manufacturing plants other than food or grain processing.

Class II industries includes those establishments where sewage is stronger than 500 ppm of five-day BOD, and includes such industries as creameries, packing-houses, poultry houses, food-processing plants, or any other place of business that may come under this classification.

John Pray, Fort Dodge's manager of municipal utilities, reports that these rates produce between fifty and sixty thousand dollars per year, and have been adequate for maintenance, operation, and amortization of bonds.

SIBLEY, IOWA—This much smaller town recently adopted the same type of sewer-service charge in order to raise funds to build a $100,000 addition to the community's sewage-treatment plant. H. H. Jeffries, Superintendent of Municipal Utilities, reports the rates as follows:

CLASS I

First 4,000 gals.	75c minimum
All over	10c per M gals.

CLASS II

First 4,000 gals.	75c minimum
All over	9c per M gals.

CLASS III

First 4,000 gals.	75c minimum
All over	8c per M gals.

Class I includes creameries, packing-houses, poultry houses, and food-processing plants, all contributors of relatively strong sewage. Class II includes laundries, dry cleaners, gas and oil stations, car-washing stations, and general manufacturing plants other than for processing. Class III includes all other uses of sanitary utilities.

MARION, IND.—Marion also uses the metered water as a basis for the sewerage charge and has used it very successfully. The water rates are as follows:

(On a Quarterly Basis)

First 6,000 gals.	25c per M gals.
Next 9,000 "	20c " " "
Next 30,000 "	15c " " "
Next 30,000 "	11c " " "
Next 5 mil. "	8c " " "
Next 5 mil. "	7c " " "
All over	6c " " "

The sewer-service charge is based first on a minimum charge of $1.80 per quarter, and allows the use of 9,750 gallons. The excess rate is based on a charge equal to 60% of the water charge over the minimum use.

Sewage Works Superintendent David Backmeyer reports that Marion has been able to develop an income ample to yield a net profit of about $10,000 annually during the past seven years, over and above operating and debt amortization costs. The funds are held in an account to be used for plant improvements. The plant anticipates building a new digester which may cost $80,000.

OAK PARK, ILL. — Water-meter readings are used here also for the basis of the sewer-service charge. The rates charged quarterly are on a "step" basis as follows:

To and including 9 M gals.	$1.50
9 to 15 M gals.	1.75
15 to 20 " "	2.00
20 to 30 " "	2.50
30 to 50 " "	3.00
50 to 70 " "	3.50
70 to 100 " "	4.00
100 to 150 " "	4.50
150 to 300 " "	6.00
300 to 450 " "	7.50
450 to 750 " "	9.00
750 M to 1 mil. gals	10.50
1 to 2 mil. gals.	16.50
2 to 3 " "	22.50
3 to 6 " "	40.50
6 to 9 " "	58.50

The gross revenue received from these quarterly billings amounts to $105,000 annually, Comptroller Robert F. Glaesel reports. Bond and interest requirements are $64,000 annually; operation and maintenance costs are about $25,000 annually. The new sewer was built in 1935-36, costing the village $1,100,000. To cover this, the village issued bonds. All bonds and interest have been paid promptly as they have matured. The village has built a reserve in the sewer-revenue fund amounting to $150,000, of which $135,000 is invested in U. S. bonds. The last sewer bonds are due in 1969, and are not callable.

BURLINGAME, CALIF.—One of the most recent of the sewer-service charges has been that put into effect by this city. Burlingame's ordinance calls for a charge of only 2 cents per thousand gallons of water used, but makes a $10-a-month charge if the contributor of the sewage is not connected to the water system.

Director of Public Works K. S. Fitch reports that Burlingame's ordinance was designed to provide a capital fund of about $45,000 in a period of three years, to be used for disposal-plant enlargement. It was not expected that the new revenue would be used for operation or amortization of existing plant facilities, although this is possible according to the wording of the ordinance.

AMES, IOWA—Here is another city that recently adopted sewer-service charges to meet the cost of sewage-works improvements. This city recently sold revenue bonds totaling $115,000 at an effective interest rate of $26,000. The cost of construction, maintenance, and operation will be borne by the city and Iowa State College, connecting to the plant, according to the respective volume of sewage contributed by each. This has been estimated to be approximately 30% for the college. Charges against the balance of the sewer users are as follows:

First 1,500 feet or less...	10c per 100 cu. ft.
Next 1,000 cu. ft.	8c " " " "
All over	5c " " " "

The minimum monthly charge is fixed at 50c per month per meter. Charges for sewer service outside the city limits are 100% higher.

NEW BRUNSWICK, N. J.—A few cities aim at the industries alone, in helping finance sewage works operation. Until recently, New Brunswick, N. J., was an example. In 1944, this city set up the following lists of charges that it made on industry and made an effort to furnish such treatment that any industry could use the city's sewerage facilities for waste disposal despite the character of the waste. The charges are as follows:

$22 per mil. gals. of flow
$5 per ton of sludge solids
$5 per 100 lbs. of chlorine demand

Of interest is the fact that when the ordinance was enacted, the mayor who supported the measure owned and operated a dairy industry in the city that was directly affected by the charge. They recently added to this a charge to the domestic user based on metered water, making the service financially self-supporting.

AKRON, OHIO—Here also a metered-water basis is used to charge for sewerage service, and by this means it is expected that plant operation will be put on a self-supporting basis. W. R. LaDue, Superintendent and Chief Engineer of Akron's Bureau of Water and Sewerage, reports a quarterly charge based on the following rates:

	Cubic Feet	*Per M Cubic Feet Gross (85c)*	*Net (75c)*
First	20,000	85c	75c
Next	20,000	80c	72½c
Next	20,000	75c	70c
Next	20,000	70c	65c
Next	920,000	65c	60c
Next	4,000,000	55c	50c
Next	5,000,000	45c	40c
All over		35c	30c

The Bureau makes minimum quarterly rates according to the size of the meter as follows:

Size	*Cubic Feet Allowed*	*Minimum Bill Gross*	*Net*
⅝-inch	2,000	$1.70	$1.50
¾-inch	3,800	3.23	2.85
1-inch	5,600	4.76	4.20
1½-inch	8,000	6.80	6.00
2-inch	10,000	8.50	7.50
3-inch	14,000	11.90	10.50
4-inch	20,000	17.00	15.00
6-inch	30,000	25.00	22.50
8-inch	50,000	40.50	36.50
9-inch	85,000	65.00	59.75
10-inch	150,000	107.50	98.50

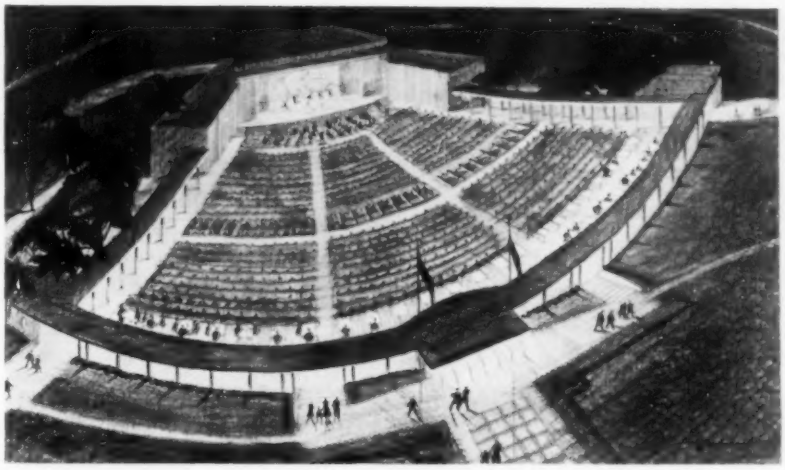
The rate is increased ¼% for each part per million of biochemical oxygen demand or suspended solids, whichever is the larger, that tests show to appear in the contributed sewage above the city-wide average. Whenever the pH value of the sewage from a particular establishment drops below 6 or rises above 8, the service-charge rate is increased by 25%. The offending industries have 30 days to correct these excesses before the special rate is put into effect.

Film About Highways For Local Showings

PRINTS of the new motion picture, *Horizons Unlimited*, which depicts the importance of highway transportation in American economic and social life, are available to organizations interested in purchasing the film for local showings.

Produced by RKO Pathe and sponsored by the highway transportation industries of the United States, the sound film's running time is 17 minutes. The 16-mm prints may be purchased for $25 per print, including shipping charges, from the Film Department, National Highway Users Conference, 938 National Press Building, Washington 4, D. C. Prints of the film will also be available on a free-loan basis.

Newspaper Presents Fort Wayne With Open-Air Theater



Architect's sketch of the projected Fort Wayne Open-Air Theater.

FORT WAYNE'S long-felt need for an outdoor amphitheater will be satisfied this summer when *The News-Sentinel* formally presents the city with an open-air theater.

This outdoor amphitheater, seating 2,500 persons, will be an outright gift to the city and will cost approximately $100,000, according to Miss Helene Foellinger, publisher of the Fort Wayne newspaper.

Construction of the project will begin early in the spring and completion is expected this summer. Funds have been turned over to the Board of Park Commissioners, which will have complete charge of the theater's construction and operation.

Announcement of the project brought to fulfillment a cherished dream of Miss Foellinger's father, the late Oscar G. Foellinger, publisher of *The News-Sentinel* until his death in October 1936.

The theater will be well adapted for use by such diversified groups as the Civic Theater and its affiliated Children's Theater, the Fort Wayne Philharmonic Orchestra and a possible young people's affiliate, choral groups from the Fort Wayne schools, and for dramas and music by the city's religious organizations, open-air forums, and Sunday evening vesper services. It is also expected that the theater will be used by professional light and grand opera groups sponsored by service organizations.

The site selected for the theater was recommended by F. Elwood Allen, recreation planner. Containing 16 acres of parkland, it is of great natural beauty and is easily accessible.

Unlike most outdoor theaters, the plans call for a structure to house the stage and accessories. Expansion of the auditorium has been considered in the proposed design, so that seating capacity can be increased to 5,000.

The stage is in the shape of a "U" with wings at either side. The wings, providing the necessary offstage space for all types of dramatic performances, are adequate to meet the requirements of stage wagons for the quick change of scenery.

The stage has a depth of 45 feet and a maximum proscenium arch of 66 feet. The opening is flexible and can be regulated to any desired size. As the stage is to be used for music as well as drama, a portable orchestra shell is proposed for the setting and acoustics. Plans call for a loading platform at the northeast corner of the stage. The orchestra pit, capable of seating 45 musicians comfortably, will be 48 feet long with an average width of 12 feet and will be located 6 feet below the level of the stage floor.

Ample space is provided below the stage for dressing rooms and another room has been set aside for a refreshment bar. Parking facilities will ultimately accommodate over 700 cars. Space for 360 cars will be provided at the outset and more space added later.

T. Richard Shoaff, architect, and W. Byron Proctor, associate, of 410 West Berry Street, drew the plans. Advice on acoustics was furnished by Floyd Row Watson.

The Framingham planning survey and report is the work of competent graduate students of the Department of Regional Planning at Harvard University, working under guidance. Although not meant to be a substitute for professional work, the excellent sketches and surveys offer many ideas for the development of the town, and provided the participating students with invaluable experience about community problems.

Harvard Students Conduct Pl

Challenging recommendations point up town's problems; urge establishment of permanent planning staff

By G. HOLMES PERKINS, *Chairman*
Department of Regional Planning
Harvard University

FRAMINGHAM, a town of over 25,000 persons, lies 25 miles west of Boston. It is trisected by the Worcester Turnpike and the Boston and Albany Railroad, the main highway and railroad lines to the West. The return of automobiles to the roads after the war again highlighted the traffic difficulties created by the grade-crossing on the main street, which is closed more than seventy times a day.

But it was the decision of General Motors to locate an assembly plant employing more than 2,000 persons in the southern portion of the town that awoke the citizens to the impending crisis and to the need for many additional services, homes, schools, and shops that would be required by the new workers.

At the annual town meeting in March 1947, a group of progressive citizens, recognizing this danger, asked that a survey committee be appointed to look into the problem. The Committee came to the Department of Regional Planning at Harvard to ask if student assistance could be had in gathering the data and analyzing the problem. From an educational viewpoint the town seemed a particularly good one to study, because it was of a size which could be understood and was sufficiently isolated geographically from the rest of the built-up areas of Metropolitan Boston so that, with fair logic and reason, its special problems could be to some degree isolated from those of the larger area. Further, it had a decisive advantage in that it was one of the few towns near by which had a real prospect of experiencing a boom.

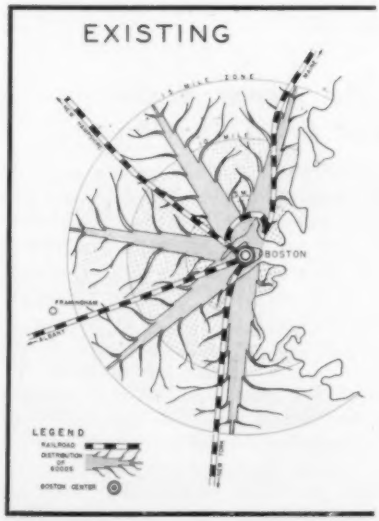
Community Survey Problems

The problem was therefore very appealing, since it has always been the practice of the School to undertake as student problems the examination of existing communities which can be readily visited from Cambridge. The difficulty that was raised, however, was the combining of a student exercise with the needs of the community for a trustworthy and thoroughly competent survey. A large measure of the value of any student work lies in the freedom which can be given the student to develop his sense of judgment by making decisions and designs which are clearly his. He cannot be expected, however, to have the maturity of judgment of an experienced professional.

We were unwilling to compromise on these educational ideals and pointed out the dilemma to the Survey Committee. While they recognized the difficulties, they remained most enthusiastic about joining forces in undertaking the collection of data, pointing out the problems, and suggesting some of the more general solutions. In fact, it was agreed that there would be no attempt made to produce a master plan which should then be accepted or rejected by the town, but rather that the data should be put together in useful and workable shape and that some general recommendations should be offered, and alternative directions suggested for the future physical development of the town. It was hoped that the results would stir sufficient enthusiasm in the town so that the study would be followed up by the hiring of professional technical help to assist the Planning Board, which was still operating under the severe limitations of the original Massachusetts Enabling Act, not having taken advantage of the amendments that had been made in succeeding years.

Therefore, at the beginning of the fall term in September 1947, the second- and third-year graduate students of the Department of Regional Planning began work with the enthusiastic participation and cooperation of the Framingham Committee. The Committee made it possible for the students to talk with most of the leading industries, many of the businessmen, the town officers and other interested organizations in the town. The first six weeks were spent in a hectic push of gathering data, preparing maps, making a basic topography, and generally in getting the "feel" of the town. At the end of this period we had produced more than sixty 30" x 40" charts summarizing the material, and reports totaling about 300 pages. The succeeding six weeks were used in an attempt to arrive at some over-all conclusions and to develop some specific programs. The 22 students prepared separate over-all plans based on two different assumptions.

The first of these assumptions was that the most critical problem facing Framingham was the reorganization of



A sketch from the report, "Framingham: Your Town, Your Problem," which helps to visualize the need for a belt line railroad in the Boston met-

ct Planning Survey for Framingham

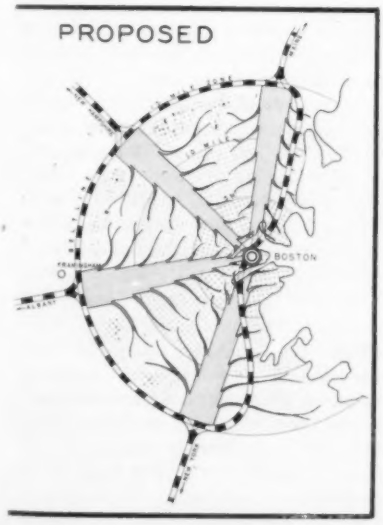
the fantastic railroad net which cut the town into five segments. An analysis of the metropolitan railway net showed that it was worth while examining the possibility of creating a belt line serving all three railroads. The effect of such a belt line would have been to remove the disastrously located rail lines from Framingham. Obviously this gave enormous freedom for future development and to a large extent suggested the possibilities of the future pattern of growth. However, it was clearly recognized that Framingham was in no position to undertake such a development itself but would require financial aid and cooperation from the railroads and from the other cities in the metropolitan area. The second plan assumed that Framingham could not count on such a metropolitan railroad redevelopment and attempted to show how vast an improvement could be made by "beginning from where you are." All the proposals in the second plan could be realized with the present resources of the town and with the legal powers it now has.

Publicizing of Recommendations

The results of the research and the plans were exhibited in the Framingham Town Hall for several weeks before the annual town meeting this March. The local newspaper serialized the report and the radio station discussed parts of the report each Sunday for several weeks. The town became aware of its own problems; and from the liveliness of the discussion, it is hoped that the goals sought have been reached. These goals are not the adoption of a plan, but an arousing of the citizens to a point where they will see for themselves the advantages and economies of the planning process.

The recommendations, some of which were adopted at the annual town meeting, do not provide a program, but open a way for the town to grapple more effectively with its own problems in its own way. They are:

1. Vote the planning board all powers permitted under the state enabling acts.
2. Vote funds for professional assistance in making and maintaining a master plan.
3. Authorize preparation of a new zoning map.
4. Authorize the annual preparation of a six-year capital budget.
5. Change to a limited town-meeting form of government with a town manager.
6. Encourage more private housing, but insist on its proper location and planning.
7. Enlarge the public housing program.
8. Build with state aid an underpass between the shopping center and Dennison's.
9. Connect the approaches of the underpass to Concord, Union, and Franklin Streets by a traffic circle.
10. Build two elementary schools within five years.
11. Raze the Washington Trade School, Franklin School, and Memorial School Annex.
12. Bring the high school up to modern standards.
13. Re-assess all real property in the town.
14. Promote the principle of the division of the town into neighborhood units for the convenience, safety, and welfare of all.
15. Plan the schools, playgrounds, and parks as the centers of neighborhoods.
16. Purchase land for these now.
17. Zone for neighborhood shops.



ropolitan area. Framingham, already a rail center, would become a focus for industrial location if such a railroad system were constructed.

We Must Conserve Critical Materials

By MAJOR GENERAL PHILIP B. FLEMING
Administrator, Federal Works Agency

WE are confronted with a difficult problem. The natural desire to begin to make some inroads into past deficits of public construction is understandable. We are short of schools, both elementary and secondary and at the college level. We are short of hospitals. We are short of sewer and water facilities. We are short of up-to-date highways. We are short of the things our communities need because existing necessary public facilities have been used excessively while we have been continually postponing new facilities.

On the other hand, we are all patriotic citizens. We are all in sympathy with the need to conserve the use of basic materials in public construction. Whatever materials can be saved should be saved, whatever public projects can be deferred should be deferred. A reconciliation between the need for public works and the need to conserve materials is difficult but not impossible if we have the will to do so, and I think we do.

The Federal Government has little power to require state and local governments to delay public projects, even where grants-in-aid are involved. The Federal Works Agency, through the Public Roads Administration, reviews proposed road and bridge contracts and, with the cooperation of state highway departments, does not approve acceptance of bids that are excessive in cost. This procedure does involve deferment of projects that are too costly or are less essential in view of current prices. Other federal agencies could adopt similar procedures where feasible.

May I suggest that it would be helpful for all government agencies, federal, state and local, to review their construction plans, and to confine contract awards to the most essential projects. Construction which cannot be deferred and which must go ahead should be reviewed from the design standpoint to avoid excessive use of scarce materials, as for instance, steel. If possible, these projects should be redesigned to make use of materials which are in reasonable supply. I realize this is a difficult task and might create shortages in other materials. But the times call for difficult decisions, and I am sure that the technical talent is available to save materials.

What About Those Expansion Joints?

How should concrete paving be designed to take full advantage of modern engineering and research technique?

"Contraction" joints, such as are used in this pavement, relieve warping stresses rather than excess shrinkage.

By N. C. McCORKLE
Assistant Engineer, Surveys and Plans
California Division of Highways

This analysis gives some guidance to decisions as to whether they can be removed from the average pavement design safely

GENERALLY, portland cement concrete pavements do not need expansion joints. However, this rule, like many others, must be understood for intelligent use. Some pavement designs definitely require expansion space.

In order to understand expansion joints and their action, it is first necessary to know what happens inside the pavement slab itself. Goldbeck, for example, found that concrete shrinks as much as 0.05% upon loss of moisture, but as he was unable to detect a shortening of pavement slabs, concluded that the damp subgrade supplied enough to make up for surface evaporation. The Division of Highways, in an independent test of weakened plant joint openings in a mile-long section not provided with space for expansions, disclosed an average shortening after correction for temperature of 0.0039% in concrete paving two years of age. This and other evidence seems to indicate that paving slabs tend to decrease slightly from their cast dimensions.

Still another factor in the life and activities of paving slabs is that of temperature variations. The California Division of Highways has found seasonal variations frequently reaching 70 degrees and daily fluctuations exceeding 30 degrees. Furthermore, it can easily be demonstrated that a temperature drop of only 16 degrees below the degree prevailing at the time of solidification will break a monolithic slab into units of a length depending principally on the amount of frictional resistance offered by the subgrade, even if no other destructive forces are in action.

Several investigators have shown that variations in moisture and temperature conditions are almost invariably present throughout the vertical dimension of the slab, and that the shape of the slab is correspondingly affected. Profile records of concrete pavement in California show that the majority of slabs present a slightly concave upward shape. In response to atmospheric conditions, the daily fluctuation in temperature is usually accompanied by a reversal in gradient through the slab, and moisture curling is accordingly alternately augmented and opposed. Westergaard concluded that stresses from temperature curling often reach magnitudes sufficient to develop transverse cracks at intervals of 15 to 25 feet in unreinforced pavement.

Thus, the conclusion seems inescapable that an unreinforced pavement composed of portland cement concrete as commonly manufactured, and of a thickness determined by customary load carrying requirements, will have joints whether contemplated in the design or not.

It further appears that these initial fractures are not the result of compressive stress, but are chiefly caused by

flexural stresses set up by moisture and temperature curling.

It is obvious that the presence of the joints destroys the continuity of structure, and it follows that the effect of a given load varies with the point of application. Furthermore, unless some provision is made for the transfer of the shearing stresses between adjoining slabs, the rolling load which deflects the ends of each slab in turn will cause a greater deflection in the end that assumes the load just after the joint has been passed. This apparently is caused by the difference in the velocity at which the deflection takes place.

Spacing of the Joints

When the spacing of the joints is at intervals of 15 to 20 feet, the openings from shrinkage or contraction alone seem to be small enough to permit reliance on aggregate interlock for load transfer if further openings can be prevented. However, the factor of safety is slight, since it has been definitely shown that the load-transfer capabilities of aggregate interlock decrease sharply with a small opening of the joint.

Of course, we are all familiar with the fact that many miles of paving have been laid without expansion joints. While some have shown no evidence of distress, others have buckled or "blown up" as the result of compression. Early engineers generally accepted the conclusion that the expansion, generated by high temperature alone, was responsible, but recent research has shown that other factors must be involved. One of the most plausible is that sand, dirt, or other incompressible material works into cracks and weakened plane joints when the pavement is in a contracted state, thus reducing the space available for subsequent expansion. The many miles of pavement that are doing good service, and that are laid without expansion joints, are proof that space for expansion is unnecessary if certain yet-to-be determined precautions are observed.

Climate Variations

While the impression seems to have somehow been established that California climate is uniformly good, actually a wide range of climate exists. In some areas equable climate prevails; in others, large daily and annual fluctuations in temperatures are common.

Portland cement concrete pavement design practice in California takes note of this situation, and the plans for projects in areas such as the Imperial Valley, subject to wide temperature ranges, provide for expansion joints. In the event the progress of the work is such that paving operations fall during the summer months, these joints are omitted. In the remainder of the state, expansion joints are omitted entirely.

California's practice takes into account the character of the aggregate and the temperature characteristics of the area in which the paving is to be laid. For example, if the pavement is planned for an area subject to wide annual temperature range, and construction is to be carried on during the cool season, expansion joints will be omitted.

Other Problems

Eliminating expansion joints introduces other unsolved problems. For example, how shall bridges be protected from the pressure exerted by the adjacent slabs? Axial stresses that may be allowable in the pavement slab may not be tolerable in the bridge members. Some type of expansion joint seems the obvious solution, yet the introduction of space of sufficient magnitude to be effective in this direction would probably seriously reduce the efficiency of the adjacent weakened plane joints.

Consequently, it is fair to say that under ordinary conditions of paving, which includes the majority of projects that we as paving engineers face today, expansion joints are not necessary, if the weakened plane joints are placed at intervals of 15 to 20 feet. Special conditions, including paving in out-of-season periods, or under unusual design conditions, might dictate the use of such expansion space in the pavement slabs.

Big Stone's Little Electric Plant

Two small diesel-powered generators supply electricity for this South Dakota town of 681

BIG STONE, S. D., may be small, but it has definite ideas on what it wants for electric service. Back in May 1941, officials here purchased two Caterpillar diesel generator sets and started furnishing electric power to their 681 townspeople. The use of the power proved sufficiently popular to encourage them to install another in December of that same year, making the total plant capacity 171 kw. Transformers step down the 2,400-volt current to 240 volts or 120 volts.

The plant is located in the town hall, near the residential area. Consequently, the engines have to be carefully muffled to reduce noise nuisance. Other auxiliary equipment included are automatic voltage regulators, ammeters, voltmeters, and oil circuit breakers.

Cost figures indicate that the municipality operates its plant at an operating cost of $0.011 per kwh. Maintenance costs run $0.872 per hp-year. John S. West is superintendent of the power plant.

Inset: Big Stone's City Hall is modest, but in it are the diesel generators that give big-city electric distribution.
Below: Two of the three engine-generator sets.

The City Tells Its Story

By HENRY DAVIS NADIG, *Director of Public Relations, New York Regional Plan Association*

MPR departments as they operate in Rochester, Norfolk and Miami Beach

TO SHOW you how municipal public relations departments are operating in the cities that have already established them, three set-ups are described in detail this month. You will note some similarities and some differences. The fact is that within the basic concept and pattern of sound municipal public relations, you can find enough of the principles and adequate techniques for adaptation to your own city's particular requirements and opportunities.

Rochester, N. Y.

Mr. L. B. Cartwright, City Manager of Rochester, writes that under the city's charter the Division of Public Relations is a part of the city's Department of Commerce, and the Director of Public Relations, appointed by the City Manager, is also a Deputy Commissioner of Commerce.

Established in 1938, the Division was a well-thought-out, comprehensive scheme for putting under one head the various aspects of the municipality's functions dealing with the public. Because of the war, full operation of the program did not get under way until 1946.

As a division chief within a city department, the Director of Public Relations is responsible for the Central License Bureau, the Public Service Bureau, the main City Hall switchboard and the Bureau of Weights and Measures. He also supervises the publication of the city employees' newspaper and the messenger service connecting the widely scattered municipal offices in the city. Information is the primary task of the Division, with service the secondary job.

Under the category of information, the Director of Public Relations is charged with editing and publishing all city reports, including the annual report to the taxpayers, the financial or comptroller's report, and the city budget. The Finance Department actually prepares the two financial reports.

Where special reports and pamphlets are desired to emphasize certain services or achievements of various city departments or bureaus, these are prepared for the specific office by the Division and are usually printed at the city's print shop, which is operated by the Finance Department. The Division also publishes the *Rochester Municipal Journal*, a six-page monthly newspaper for city employees printed in an edition of 4,000 copies by a private printing house.

The Director of Public Relations has authority to handle all City Hall relations with the local press, but Rochester has found that policy and good judgment had led to making his services available only upon demand. Various departments and bureaus call upon him to prepare special stories, plan campaigns, and work on long-trend projects, but day-to-day items are handled directly by City Hall spokesmen.

The Director of Public Relations handles all the city's advertising, preparing it for local and national publications and placing it. Mr. Cartwright reports that with the limited amount of funds available for advertising, the policy has paid extensive dividends.

The Public Service Bureau, operated on a 24-hour basis seven days a week, is a clearing house for requests for information and service by Rochester's citizens. Service requests are sent by hourly messenger to the office directly concerned, and a special field force checks daily with the citizens who have requested service to see whether or not the request has been satisfactorily taken care of. The daily report record of the Public Service Bureau is extremely valuable to the city manager—it furnishes him and his department heads with a resumé of possible break-downs in city service.

A new service not yet publicized locally is the Municipal Reference Library, whose physical quarters are yet to be achieved, but whose task of building up reference works and a competent filing system pertaining to municipal problems has been started.

The Central License Bureau is designed to give the public a single office where all local licenses and permits are issued. The City Sealer and his Bureau of Weights and Measures are under the Director of Public Relations and all telephone service is under the Director. Courtesy is stressed and operators are trained to divert general calls for service and information to the Public Service Bureau. The City Hall information booth is technically a part of the Service Bureau and serves as a guide to the City Hall and the adjacent county court house.

His duties in the Commerce Department phase of his work give the Public Relations Director the responsibility of aiding Rochester business, and Mr. Cartwright reports the Division has carried out a very successful program in helping the city's industrial and commercial establishments.

Radio seems to be the only medium that Rochester has not yet fully developed for its MPR, using it presently only for news and special events. However, the MPR Director is exploring for the best type of municipal broadcast "with true listener appeal."

Norfolk, Va.

In Norfolk, Va., the city's public relations set-up was initiated August 15, 1947, and consists of one man. The MPR program has three phases: (1) writing and spotting local news stories for the local press and radio, (2) conducting a weekly radio program on municipal affairs, and (3) preparation of the annual report.

The public relations man confines his releases primarily to monthly reports of the departments, feature stories, and stories of exposition. He also directs reporters to news material and aids them with background research and technical data. City Hall reporters have complete freedom in visiting any municipal official, including the City Manager (Mr. C. A. Harrell), who sees an average of two radio newsmen and two newspapermen each day. W. Brooks Kiser, Administrative Assistant, informs me that the best release by the public relations official to date was a roundup of 1947 which received a six-column spread in both local newspapers.

The weekly radio program, at 7:30 p.m. on Wednesdays, was inaugurated in October. The program is built around a fictitious character, Henry Citizen, who each week visits some branch of the local government. The MPR man

plays the part of the character and asks questions of municipal employees in order to present to listeners an explanation of their work.

The MPR official prepares the city's annual report from copy submitted by bureaus and departments, and the police division cooperates with the taking of pictures. The City Manager approves the final style and layout of the report.

When divisions of the local government prepare reports for general distribution, the MPR man is on hand to coordinate the report. For example, a forthcoming report from the traffic engineering division was made from a layout by the MPR man, who is also developing folders and pamphlets on various phases of government.

A variety of odd jobs also falls within the province of Norfolk's MPR man. Recently the city gave a breakfast for about 300 persons in the shipping industry, coordinating it with the formal opening of a new $6,000,000 pier. The work of the MPR man included the selection of invitations, preparation of invitation lists, layout of menu, and liaison between the place of the breakfast and the city.

Miami Beach, Fla.

Thomas F. Smith, Director of the Convention Bureau and Department of Public Relations, has reported on the MPR set-up in his city. His job is to oversee the activities of the News Bureau and the Convention Bureau, which are the two component parts of the Public Relations Department.

The MPR Director has two staff writers, a picture editor, and two photographers working in the News Bureau. He has an assistant to aid in soliciting conventions and in making detailed arrangements for their housing and entertainment. He has a secretarial and clerical staff with four young women serving both the News Bureau and the Convention Bureau. His department is housed on the entire fourth floor and part of the fifth floor in the City Hall at Miami Beach. The Public Relations Department is a unit of the city government and as such is financed by taxation.

The MPR administrative activities include supervision of all of the work and personnel of the News Bureau and the Convention Bureau. He also greets distinguished visitors to the city. He extends, on behalf of the Mayor, a welcome to conventions meeting in Miami Beach except on such occasions when the mayor appears personally.

Mr. Smith writes that the News Bureau acts as an auxiliary arm of the three national press associations and out-of-town newspapers in covering spot news of interest in Miami Beach and especially that arising out of conventions where speakers of national note appear. Besides this, the News Bureau supplies weekly feature releases for the travel sections of 410 daily newspapers, prepares special articles for newspapers and magazines when asked to do so, and cooperates with staff writers sent to Miami Beach seeking information.

Thousands of pictures each year are supplied by the photographic staff of the News Bureau to newspapers and magazines, and of course the photographic staff aids photographers and newsreel men in obtaining the pictures they desire in Miami Beach. Under supervision of the MPR Director, the News Bureau prepares a quarterly news letter (illustrated in this department of THE AMERICAN CITY in the February issue) which is designed to give voters and taxpayers information on the activities of the entire city government. In addition, the MPR Director assists in supervising the city's newspaper and magazine advertising program.

It is the job of the Convention Bureau to keep in touch with organizations throughout the United States—national, regional and state—through an extensive mailing list and a reporting service, all designed to seek conventions for Miami Beach. Mail, telegram, and personal appearance are used in this effort. Once a convention has been booked, there is still much work to be done in arranging for rooms, meeting halls, transportation, and entertainment, and even as a convention is in session the bureau offers secretarial assistance for registration and other office work. And all the while the News Bureau is aiding the convening organization with advance publicity, helping to cover its meetings for the press associations, daily papers, and trade publications.

A Man-Sized Job

The task of performing a real municipal public relations job for any city is a man-sized one, any way you look at it. Even an operation of the most limited scope has its opportunities and its pitfalls for the most competent and astute of public relations men. As I have said so often before in this department, the expert is required if your city is desirous of making the most of its assets, of streamlining its relations with the local and the "foreign" public, and of improving its municipal economy through public understanding and appreciation.

Good Tax MPR

City Manager Donald M. Oakes of Alpena, Mich., sent along the leaflet shown below, in connection with his report in our MPR Questionnaire.

Significance of this tax explanation is its plain talk. The question of taxes comes right down to comparisons quickly caught by the average person. Ice cream, stamps, movie tickets, soap, chewing gum, gasoline and fixing flats —these are things the plain citizen knows something about.

Put taxes—or tax comparisons—in terms of such everyday pocket expenses and you are talking with the man on the street—and he's listening!

This is good practical MPR.

LET'S LOOK AT ALPENA CITY TAXES THIS WAY:

The cost of two gallons of gasoline is more than your share of Alpena's General Administration costs for an entire month . . . day and night police protection costs you the equivalent of a package of cigarettes. Your Health Department costs you less than a nickel a month.

The Fire Department is at your beck and call every day, every night, all year around for less than the cost of one theater ticket a month. For a dime a month you can ice skate in the winter, have supervised swimming in the summer, listen to the City Band and buy candy for the kids at Christmas.

The Cemetery Department costs you two 3-cent stamps per month . . . and a bus ride costs you more than the City's retirement fund contribution.

Until the traffic meters are all paid for they cost you less than a package of gum and two sticks of that are returned and go toward paying other expenditures. The cost of a pound of hamburger per month runs your Water Department (if the cost of meat doesn't go higher.)

A dish of ice cream without the trimmings will cost you more than your street lights in a month and this includes a long term expansion program.

To construct and maintain your streets, sewers, sidewalks, bridges, and to plow snow cost you less than fixing one flat tire on your automobile each month.

Lastly, the cost of one bar of soap per month is washing away our small bonded debt on the Hospital, Bridge and Filtration Plant.

Your Mayor and Municipal Council

Alpena, Mich., compares the tax burden with the cost of consumers' goods.

Those Pipeline Breaks

Newark, N. J., develops a procedure that puts emergency work on a sound engineering basis

IF AN emergency forces you to shut down any of your large water mains, can you do it quickly and efficiently without having to call on some key man who "remembers" where the valves are?

In Newark, any crew of the Division of Water can shut down any large water main quickly and efficiently anywhere in the system by following carefully tabulated instructions. Laurie M. Leedom, construction engineer of the Division of Water, explained the way this program developed in Newark at the recent fall meeting of the New Jersey Section of the AWWA.

The first step, he said, was to look at a typical feeder main on a well-made-up layout map and imagine a break in it, then try to visualize what would have to be done. You would close the largest valves first if they are gate valves because back-feed from the smaller lines will help balance the pressure and give a better chance of closing a large gate valve.

(Back-feed is necessary only if gate valves are involved. This is due to the basic design of gate valves. Unbalanced pressure makes any gate valve harder to operate. If cone valves are used, unbalanced pressure does not make the valves harder to operate. In fact, it aids somewhat in closing a cone valve because of the water-wheel effect inherent in the design of a cone valve. Therefore the matter of back-feed may be disregarded when cone valves are used.)

Next you would list the smaller valves that would have to be shut and their proper sequence of closing.

When, on paper, you have the main securely closed, you can then analyze the system and see what effect it has created. If there is an alternate supply to the affected area, you can write down what valves should be opened during this emergency. If the shutdown shows a critical condition in one part of the town, you automatically have uncovered where your next pipe-laying program must begin, because alternate supplies always are necessary.

After making your paper shutdown and establishing an alternate supply, you next have to consider how to drain the line quickly so that repairs can be begun. It isn't always necessary to drain all the line. A valley on the other side of a summit beyond the break, for example, would not need unwatering. In any case, profiles of the pipelines are helpful, and if they are not available, a ground profile is the best alternative.

With that procedure outlined and all valves identified, you have the procedure for that particular break. By considering main valves on each side of a possible break as a section, you can continue section by section until you have gone over the whole length of the system.

NO.6 LINE - 48" STEEL

SECTION 6

SMITH ST. AT 29TH ST. TO MARKET ST. AT 15TH ST.

OPERATION "A" - TO SHUT DOWN LINE

SHUT VALVE 167	SMITH ST. AT 29TH ST.
SHUT HYDRANT VALVE "A"	SMITH ST. AT 29TH ST.
SHUT VALVE 38	SMITH ST. AT 26TH ST.
SHUT VALVE 43	CLARK ST. AT 22ND ST.
SEE THAT VALVE 343 IS SHUT	21ST ST. AT CLARK ST.
SEE THAT VALVE 735 IS SHUT	PARK AVE. AT MARKET ST.
SHUT VALVE 168	MARKET ST. AT 15TH ST.
SHUT VALVE 17	" " " "
SHUT VALVE 18	" " " "
SHUT VALVE 19	" " " "

OPERATION "B" - PROVISION FOR ALTERNATE SUPPLY

SEE THAT VALVE 180 IS OPEN	LOCUST ST. AT 15TH ST.
SEE THAT VALVE 342 IS OPEN	21ST ST. AT CLARK ST.
OPEN VALVE 37	SMITH ST. AT 26TH ST.
SEE THAT HYDRANT VALVE "B" IS OPEN.	SMITH ST. AT 29TH ST.

OPERATION "C" - TO UNWATER LINE

OPEN BLOW-OFF VALVE 34	SMITH ST. AT 27TH ST.
CHECK AUTOMATIC AIR VALVE 33	24TH ST. WEST OF CLARK ST.
OPEN BLOW-OFF VALVE 35	CLARK ST. AT PARK AVE.
CHECK AUTOMATIC AIR VALVE 34	PARK AVE. WEST OF MARKET ST.
OPEN BLOW-OFF VALVE 36	15TH ST. AT MARKET ST.

MAIN VALVES							BY-PASS	
VALVE	SIZE	TURNS	LOCATION				LOCATION	TURNS
167	18"	75	38'4"	NN	5'0"	WW	CONE VALVE IN VAULT	
HYD.A	6"	19	13'5"	NN	5'2"	WE		
38	24"	195	8'7"	SN	3'1"	EE		
43	12"	36	12'8"	NS	1'7"	WE		
343	8"	24	8'10"	SN	21'6"	EE		
735	12"	36	12'3"	NN	4'0"	WW		
168	18"	75	18'3"	SS	5'0"	WW	CONE VALVE IN VAULT	
17	20"	126	16'6"	NS	7'6"	EW		
18	20"	125	9'10"	NS	7'6"	EW		
19	20"	126	3'4"	NS	7'6"	EW		
180	36"	452	8'8"	NS	15'0"	EW	1'2" SS 15'0" EW	20
342	8"	25	9'8"	NS	21'6"	EE		
37	24"	196	2'2"	NS	3'0"	EE		
HYD.B	6"	19	53'9"	NN	5'2"	WE		
BO 34	8"	25	12'6"	NS	4'1"	EW		
AAV 33	6"		5'0"	SS	65'6"	WW		
BO 35	6"	19	11'8"	SN	5'0"	EW		
AAV 34	6"		5'0"	SS	52'8"	WW		
BO 36	8"	25	8'4"	SN	3'1"	EE		

To close a typical section, the crew follows directions, reading down this sheet. To open the section, the men read from the bottom up and reverse operations.

Operating Sheets In Notebook Form

Having these data, you must tabulate them into a convenient form. Newark sets it up in notebook size, and has blue prints and photostats made. These can be inserted in waterproof covers with clear plastic windows. When a repair crew follows directions from top to bottom of a sheet, it knows that the line has been shut off, alternate supply established, and the line drained. To put the line back in service, the crew needs only to start at the bottom of the sheet and work up with reverse operations.

The operating sheets carry instructions to check the position of valves supposed to be shut. It also reminds the crew to check air valves to see that they are open when the line is emptying and that they have not blown shut when the line is being filled. At the bottom of the operating sheets is a table showing the valve number, its size, the number

of turns it takes to operate, its location, usually from two intersecting curbs, whether it is in a vault or not, and whether it has a bypass. The operating sheet has a section diagram, not to scale, showing valves and other appurtenances. No attempt is made to show bends in the pipeline, which is represented by a heavy straight line. The names of the streets in which the pipe is laid are shown and all intersecting streets are marked in such a way that the route of the pipe may be readily followed. To clarify it still further, small arrows under each street name show which direction is north. The diagram shows the valves, hydrants, blow-off valves, manholes, pitometer taps, electrolysis stations, and pressure regulators. The top of the sheet shows the profile. The length of the section is given so that a rough calculation will indicate the length of time to empty the line.

Other Operating Aids

Coupled with this itemized outline of operating procedure should be certain inspection and maintenance practices that will insure the work's proceeding smoothly. Periodic valve operation is one. Valves should be operated fully in each direction to see whether they seat properly. They also should be fully lubricated and tested for shutoff. This may require night work. When testing valves of 20 inches or larger, the work can be simplified greatly by using a mechanical operator such as the Payne Dean attachment.

Cone valves, in Mr. Leedom's opinion, eventually will replace large gate valves. Because of their basic design, cone valves of much smaller diameter may be installed in a pipeline by using properly designed venturi reducers, through which the hydraulic loss is negligible. They can be operated by a valve key passing through a valve box in a vault roof, or by a crank handle welded to the operating nut. They take only a few minutes to operate as against nearly an hour for a 48-inch gate valve.

Weather-proof lights in vaults and rust-proof built-in ladders aid men immeasurably in the work. Mr. Leedom suggests having the vaults wired for electricity, but not connected to a power line, the wiring to receive the plug of a Homelite generator. This eliminates the danger of leaving the lights on, and removes any expense of standby electric service by the power company.

Survey to Adjust Public Pay to Private Wage Scales

FIVE local governments in the Los Angeles area are completing a special survey designed to equate the pay of civil servants with that received for similar work in private industry. The survey involves gathering detailed information on wage and salary rates from all firms in the Los Angeles area employing more than 250 persons each, plus a sampling of smaller industries and businesses.

Public pay-change recommendations will be based on the information collected, although public employees' associations, unions, and taxpayers' groups will be heard before any final decisions are made. A field staff of 17 is collecting information, using detailed questionnaires, on 57 key job classifications representing 600 kinds of public-service employment in the area.

The Civil Service Assembly reports that the project is undertaken jointly by the State of California, the City and County of Los Angeles, the Board of Education and the Los Angeles Housing Authority.

pH Recording Meter Simplifies Treatment

A pH recording meter installed in the St. Paul, Minn., water-treatment plant has made the control of the lime-softening process much more accurate, according to the recent annual report of the water commissioners. The pH recording meter, or potentiometer, measures or indicates and records the other electric potentials in the water. A change in alkalinity changes the potential of the solution. Hence a potential may be established where the bicarbonates of the water are removed, and the water softened. By establishing the pH of the water where the bicarbonates of lime and magnesium are removed most easily, it is only necessary to keep the water at this optimum potential. The pH required for the removal of bicarbonates of lime and magnesium is somewhere about 12. This requires that a sufficient amount of lime be suspended in water to raise the potential to this point.

The potentiometer carries on a continuous analysis of the water and indicates the results on its dial and records them on a chart. The plant operator adjusts the chemical feed machines to such application of lime as to keep the water to a predetermined potential. The potentiometer governs the application of lime to water to a point far beyond that possible by manual chemical analysis. It takes the routine analysis of control out of the laboratory. It enables the plant operator to check on the treatment process at any minute and to correct lime feed accordingly. The application of lime by potentiometer control simplifies plant control by reducing routine laboratory analysis, eliminating overtreatment, conserving carbon dioxide through the elimination of overtreatment, and by refining the entire process of water softening.

The potentiometer has some requirements for its operation that are most exacting. It is not a machine that one sets up and leaves to itself. It needs daily standardization and servicing and may require adjustment. It requires the services of a trained technician for 15 or 20 minutes a day.

The potentiometer was installed under the direction of L. N. Thompson, general manager of the Board of Water Commissioners, St. Paul, Minn.

Norris, Tenn., Now On Auction Block

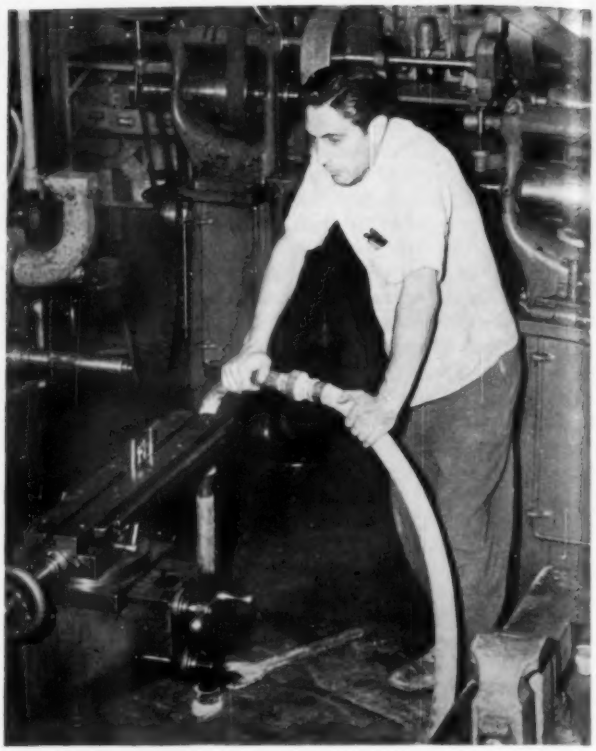
THE Tennessee Valley Authority has announced that the minimum price it will consider for the Town of Norris, Tenn., is $1,849,750. The town, a completely planned residential community with a population of 1,250, four miles from Norris Dam and 21 miles northwest of Knoxville, is now on the auction block.

Every effort is being made to dispose of the 1,284-acre property as a single unit. But, if no offers are received for the town by May 31, the single-unit offer will be withdrawn, and the TVA will proceed with plans to sell individual pieces of property at auction. In that case, present residents of the town and veterans will also have an opportunity to bid.

Norris is said to offer a unique investment opportunity. Acreage is available to provide adequate locations for at least 800 additional homes, together with sites for business buildings, playgrounds, parks, and public facilities. However, it is hoped that the property will not be sold in small pieces and fall into the hands of speculators, as did so much of the housing built during the first World War.

Copies of a 22-page prospectus with photographs, illustrating the town's features and outlining the terms and conditions of sale, may be obtained from TVA's Land Branch, Property and Supply Division, Knoxville, Tenn.

The pneumatic grout-injector arrangement outside the building.



The injection pipe penetrates 20 feet below the concrete floor.

Refuse Fill Stabilized For School Building Use

Pneumatic-pressure system stops building settlement on refuse fill in Elizabeth, N. J.

THE question of stabilizing a refuse fill so that it can carry heavy building loads safely seems a step closer to an answer because of work accomplished in Elizabeth, N. J. In this city, the floors of its Thomas A. Edison Vocational and Technical High School Building were stabilized sufficiently to prevent the subsidence of floors that almost required major repair action.

The high school, covering a ground area of about 33,000 square feet, was erected in 1935 on the site of an old municipal refuse dump made on an abandoned river bed. The depth of the filled ground is from 7 to 12 feet below the ground-floor level. The river mud deposit is from 3 to 11 feet thick below the bottom of the fill. Precast reinforced concrete piles support the building walls, piers, and columns. The reinforced concrete ground floors were placed on a well-graded and compacted sandbed of an average thickness of about 2 feet.

Why the Work Was Required

This floor settled severely because of the subsidence of the ground, resulting from natural compression of the old river-muck deposits and the deterioration of the refuse fill. The irregular settlement of the floors had progressed to such a degree that the school board was prompted to look into the question of stabilizing the soil so as to prevent further settlement. Some of the interior walls, resting on the concrete floors, were also ruptured by the sinking of their supports. The uneven surface of the floors, varying from 2 to 6 inches below their original grade, caused many other inconveniences, such as misalignment of furniture, machines, and other accessories.

Attempts at Soil Stabilization

After careful studies, the Board of Education decided to adopt the Weber System of soil stabilization. It uses a pressure system of injecting sand and mortar compositions into the deep river muck and filled ground strata. It solidifies the muck by compression, greatly reducing its water content. It grouts all the cavities in the filled ground and under the floor with sand and mortar. It applies sufficient pressure to compact the entire mass thoroughly and thus not only correct the existing deficiencies, but also help eliminate the danger of any future settlements.

On July 24, 1947, the contract for the soil-stabilization work was awarded to The Presscrete Co., Inc., 243 Graybar Bldg., New York 17, N. Y.

The performance of the work de-

manded careful planning, since a major part of it had to be done while the school was in session. Great care was required to prevent damage to the polished woodstave and colored tile floor coverings, as well as to protect furniture, machinery, and other equipment that could not be removed while the soil-stabilization work was in progress. The various rooms had to be kept scrupulously clean at all times, and utmost precautions were necessary to prevent accidental splashes of water or grout within the school rooms. Excessive noises of machinery and workmen could not be tolerated.

The concrete floors of the Thomas A. Edison Vocational and Technical High School, built in 1935 on filled ground, were beginning to settle badly in 1947.

Equipment Requirement

The machinery required for the performance of the pressure injection or grouting work included two Prehy Pressure Grout Injectors, a portable air compressor of 160 cfm capacity, and a concrete mixer. These were assembled and operated at outside spaces adjacent to the building. In addition, various other kinds of special equipment for the placing and withdrawal of the grout injection pipes, for the drilling of the grout inlet holes, pipe-driving plug points, and jam-plug seals were needed for the correct, safe and speedy performance of grouting operations.

The grout inlet holes through the floors were placed from 6 to 12 feet apart, and 427 grout holes of 2¼-inch diameter were drilled to cover the entire area. The 1¼-inch-diameter sectional grout pipes were then inserted in these holes and driven to the required depth, from 8 to 24 feet below the surface. The driving of the injection pipes through the conglomerate fill proved to be very difficult. In many places old and broken concrete pavings and metal parts from household equipment, etc., had to be penetrated to ram the pipes down to the bottom of the river-mud deposit.

The properly prepared material mixtures were then forced into the ground through these pipes, with grouting pressures ranging from 50 to 90 psi, equal to 7,000 to 13,000 pounds per sq. ft. The material was conveyed to each inlet in strong flexible-pressure hose lines of variable length. The greatest length required was about 160 feet.

Procedure

The material injection into each hole was made in successive upward stages. Whenever complete refusal of group intake was obtained at each lower elevation, the pipe was raised from 2 to 4 feet, and the injection work continued until the entire hole was solidly filled to the top. The injection pipe was then completely withdrawn, and the hole in the floor was temporarily sealed with an expansible jam-plug.

The jam-plugs are constructed to permit the injection of material directly below the concrete floor. When the injection work for a large floor area is completed, the cap of each plug is removed, and liquified mortar is pressed under the concrete floor wherever possible to secure uniform filling of all spaces that may have been created by slight rises of the floor slab under grouting pressure in adjoining places.

Terrain Difficulties

The amount of material or grout that could be forced into each hole varied considerably. While injection of 15 to 200 cubic feet of grout was obtained at some single points, only very small quantities were taken by others that had often already been compacted by lateral pressure from adjacent injections. In many places the grout traveled for considerable distances—up to 40 feet—through meandering passageways and cavities in the filled ground.

One of the interesting features of existing conditions was that, with very few exceptions, the ground had receded from 1½ to 16 inches below the concrete floor, which was thus left without support, actually hanging in space. These hollow spaces are now solidly filled by the uplift pressure of materials injected in the lower ground strata; these pressures were adjusted to raise the floor to the original level wherever this could be permitted.

The Pressecrete Company and its affiliated organization specialize in the performance of this work, and also provide competent engineering consultation service everywhere for project investigation and for the preparation of working plans, specifications, estimates of cost, and all other details that usually precede actual work for extensive or unusual requirements.

What Water Makes Good Concrete?

IS THAT time-tested old phrase, "The water shall be clean and free from deleterious materials," enough to cover water requirements in concrete construction? Recent discussions in the English publication, *Concrete and Constructional Engineering*, Vol. XLII, No. 10, indicates that it isn't.

The findings question U. S. practice of testing water by matching mortar made of it with mortar made from water of known quality by the familiar briquet test at 28 days. The test shows early harmful effects, but does not disclose those that occur over a longer period, such as the results of organic acids in the water.

These known facts are listed on water use in concrete:

1. Sea water at normal temperatures with salt concentration about 3½% will not appreciably reduce the strength of portland cement concrete. However, it may cause it to effloresce and produce reinforcing corrosion.

2. Tannic acid and sugar in very weak solutions injure the concrete.

3. Sulphate-bearing waters are harmful.

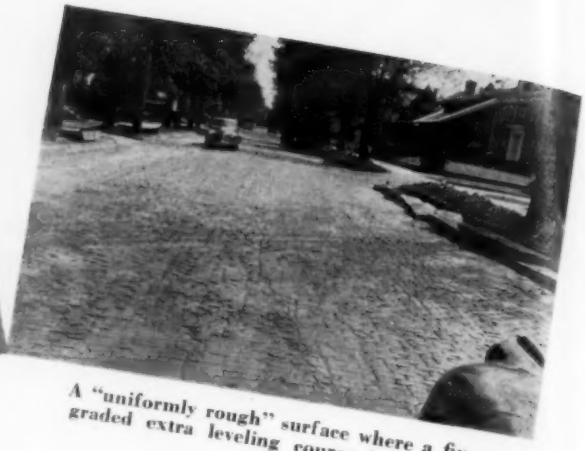
4. Effluent from sewage works, gas works, paint works, and from the manufacture of artificial fertilizers can be damaging.

5. Effluent from oil refineries, breweries, soap works, may not be damaging.

6. Marsh water containing humic acid or free carbonic acid is harmful, although water containing dissolved carbonic acid is not.

7. Soft water may produce a weaker concrete than hard water. Magnesium sulphate in permanently hard water has little effect.

An extra leveling course, laid in a separate operation, allows corrections in crown where needed.



A "uniformly rough" surface where a fine-graded extra leveling course is desirable.

Some Principles Of Old-Pavement Salvage

How to get more years of service out of deteriorated pavement

THE State of Ohio has been adding years of life to its concrete and brick pavements by using an asphaltic concrete surfacing. C. R. Hanes, Field Engineer, Ohio State Highway Department, Bureau of Construction, explained the practice in his state before the Highway Research Board's annual meeting held recently in Washington, D. C.

When resurfacing old portland cement concrete surfaces, old brick pavements, or badly cracked bituminous surfaces, a prime or tack coat ordinarily is required. This usually is an asphalt emulsion, MS-1, applied at the rate of 0.10 gallons per square yard, followed immediately by a sand cover of from 2 to 5 pounds per square yard. The cover prevents traffic from picking up the bituminous material.

To recondition old portland cement concrete pavements, the first step is to stabilize the slab. This consists of forcing a relatively hard, hot asphalt under the slab, thereby sealing the joints or cracks from underneath, and at the same time replacing the pumped-out subgrade material. The asphalt is pumped under the slab through the holes which have been drilled adjacent to the pumping joint or crack. It is important to plug these holes to avoid having the asphalt forced back through the resurfacing material, which may happen where higher-penetration material is used.

Pavement failures obviously caused by subgrade conditions may be corrected by removing the defective material along with 12 to 18 inches of the subgrade material and replacing it with a selected sub-base. If this is of the open-free-draining classification, it may be necessary to provide draining in addition to the blanket material.

Breaking Sometimes Required

If the concrete pavement is so badly deteriorated that it no longer acts as a slab, the surface can be reconditioned by breaking it further with a pavement breaker, cracking the rocking slabs and seating them on the subgrade. The loose material may then be swept from the broken area and a prime coat added. The area may then be leveled and strengthened by courses of bituminous concrete.

The broken concrete can be resurfaced also by applying an insulation course laid over the old broken pavement. This should be followed by a bituminous concrete base, or leveling course, and then the regular surface

COMPOSITION OF ASPHALTIC CONCRETE MIXTURES

BASE

PASSING SIEVE	RETAINED ON SIEVE	PER CENT MINIMUM	PER CENT MAXIMUM
2 INCH	1 INCH	10	35
1 INCH	½ INCH	10	45
½ INCH	Nº 4	8	40
Nº 4	Nº 8	0	8
Nº 8	Nº 50	10	40
Nº 50	Nº 200	8	17
Nº 200		0	3
BITUMEN		4	8
TOTAL RETAINED ON Nº 8		60	75

TYPE "A" NARROW BASE, LEVELING OR SURFACE RURAL

PASSING SIEVE	RETAINED ON SIEVE	PER CENT MINIMUM	PER CENT MAXIMUM
1 INCH	¾ INCH	0	5
¾ INCH	½ INCH	5	20
½ INCH	⅜ INCH	7	30
⅜ INCH	Nº 4	10	35
Nº 4	Nº 8	0	10
Nº 8	Nº 50	20	45
Nº 50	Nº 200	3	15
Nº 200		0	5
BITUMEN		5	9.5
TOTAL RETAINED ON Nº 8		50	60

TYPE "B" SURFACE

PASSING SIEVE	RETAINED ON SIEVE	PER CENT MINIMUM	PER CENT MAXIMUM
¾ INCH	½ INCH	0	8
½ INCH	⅜ INCH	10	35
⅜ INCH	Nº 4	10	35
Nº 4	Nº 8	0	10
Nº 8	Nº 50	20	48
Nº 50	Nº 200	3	15
Nº 200		0	5
BITUMEN		5	9.5
TOTAL RETAINED ON Nº 8		48	60

TYPE "C" SURFACE URBAN

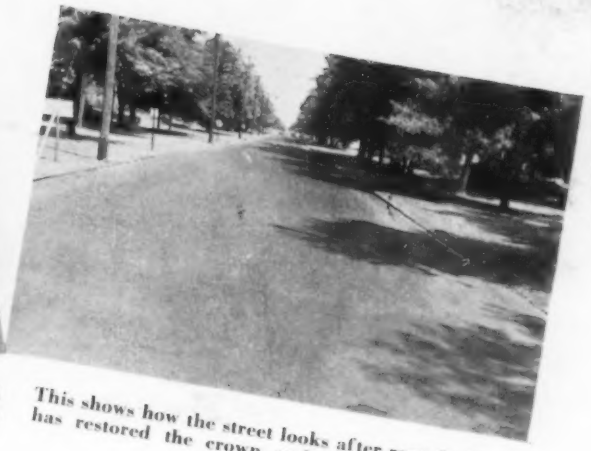
PASSING SIEVE	RETAINED ON SIEVE	PER CENT MINIMUM	PER CENT MAXIMUM
½ INCH	⅜ INCH	0	7
⅜ INCH	Nº 4	25	45
Nº 4	Nº 8	0	15
Nº 8	Nº 50	20	45
Nº 50	Nº 200	3	15
Nº 200	"	0	5
BITUMEN		6	10
TOTAL RETAINED ON Nº 8		40	55

CONVERSION TABLE

COARSE AGGREGATE	SLAG	STONE OR GRAVEL
POUNDS PER CU YD	3550	3600

This shows the composition of various asphalt-concrete mixtures, paid for on a cubic-yard basis using weights as indicated.

Many street sections become distorted and retard drainage if forced to carry heavy traffic loads.



This shows how the street looks after resurfacing has restored the crown and the gutter grade.

PHOTOS COURTESY OF C. R. HANES, FIELD ENGINEER, OHIO STATE HIGHWAY DEPARTMENT

courses are used for the remainder of the work. The insulating course should consist of granulated slag or screenings or coarse graded aggregate similar to that used for water-bound macadam.

It is important in either case for the broken pavement actually to be rammed into the subgrade with the drop hammer.

Wartime Alternate

During the war, Ohio developed an alternate method that has proved successful. This alternate method was used on an old concrete pavement that was pumping badly and had developed many broken slab sections under extremely heavy truck traffic. The repairs consisted of supplying 2-inch road-mix surface the first season. This sealed many of the less serious pumping joints and cracks. However, as was expected, some of the more critical pumping sections broke through. The following season, a second 3-inch bituminous concrete extra leveling course was placed over the areas where pumping continued to show through, before a 2½-inch bituminous concrete course was placed over the entire project.

Generally, however, it is more economical to correct minor failure by increasing the thickness of the resurfacing material over these areas than resorting to removal of the old pavement.

Catch Basins

When catch basins are encountered, these should be raised to grade after the surfacing has been placed. Test installations have shown the usefulness of adjusting rings to set the casting to the new grade. The depth of these rings is determined after all leveling material has been placed.

Where curb height does not permit extending full-depth leveling and surface courses to the face of the curb, the leveling course is decreased in a minimum distance of 30 inches to a zero depth at the curb face. The surface course is then carried full depth to the curb face. After the surface course is placed and compacted, the gutter must be sealed with the same bituminous material contained in the mixture. Only enough material is applied to coat the surface for a distance of 15 inches from the curb, or 24 inches wide for a "V" gutter.

How Grand Haven, Mich., Cleans Its Wells

WELL cleaning is an annual practice in Grand Haven, Mich. Since the wells draw from an aquifer that has a high iron content, the screens incrust over frequently enough to lower the well yield appreciably. Grand Haven has eight wells of the Layne-Northern gravel-wall type, approximately 28 feet deep, located on the shore of Lake Michigan about a half mile from the filtration plant.

Each spring, the water department cleans the wells, using a combined acid and dry-ice treatment. The method is somewhat empirical and not the result of exact scientific research, but was suggested by the men who installed the wells, and it works effectively.

Specifically, the cleaning work involves the use of Dupont Duclean No. 2 inhibited hydrochloric acid. It is necessary to use the inhibited acid to prevent too-active action on the metal of the well screen. The well screens are about 20 inches in diameter.

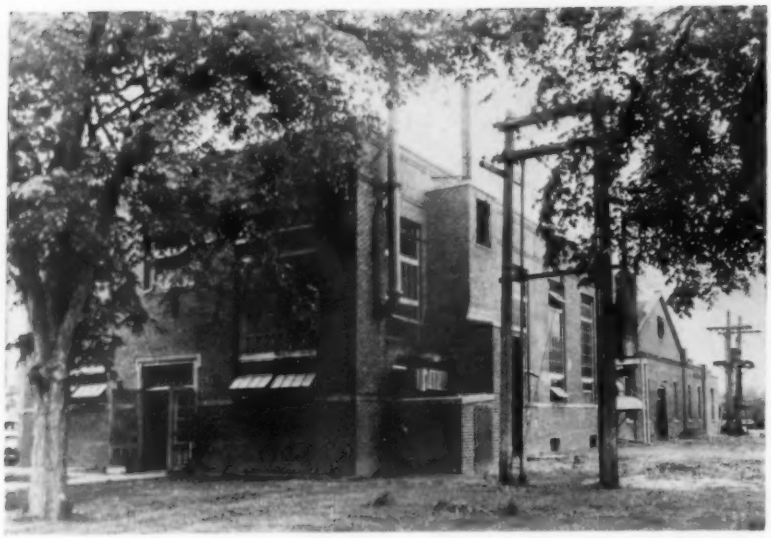
The first step is to fasten a rubber hose to the bottom of a 5-gallon pail and insert it in the well screen. The next is to install a length of 6-inch stovepipe to a frame and use this to add the crushed dry ice. Dry ice and acid are added alternately in the proportion of ten 125-pound carboys of acid to 500 pounds of ice for each well. The function of the ice is to agitate the acid and insure its thorough contact with the incrusted well screen.

After the dry ice and acid are added, the well is allowed to stand in contact with the chemicals for 24 hours. After this, the wells are pumped to the waste-line of the filtration plant until no acid is found present by the methyl orange test. The wells are then put back into service after showing the water to be clear and entirely free from the added chemicals.

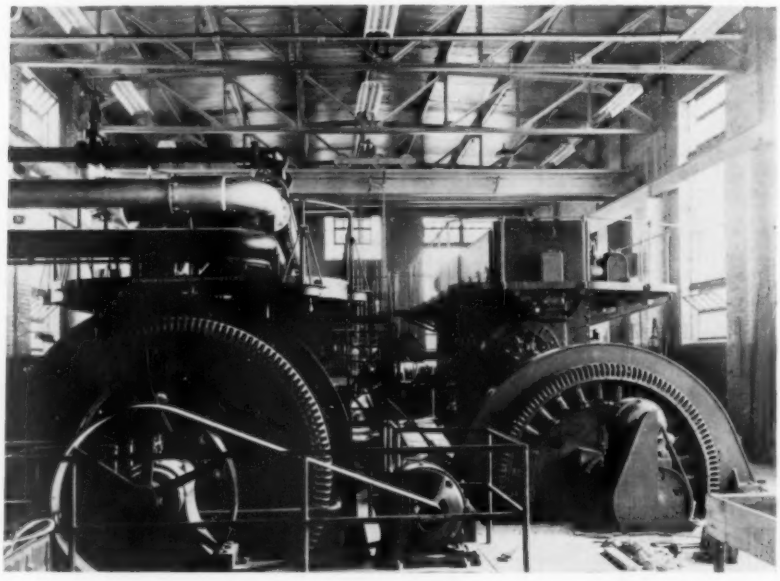
The water is then pumped into the filter plant for our regular treatment of an addition of alum, lime, and chlorine, sedimentation in the plant coagulating basins, and filtration. An iron-free water results from this treatment.

The treatment boosts the yield of water from the wells about one-third. Before treatment, we have difficulty getting 1½ mgd from the eight wells. Afterward, we get approximately 2 mgd. The treatment will not, of course, increase the yield beyond that originally given by the wells, but if used annually it seems to restore the volume nearly to the original amount that the wells yielded.

N. T. Ellis
City Chemist



The Wahoo electric plant. The background shows buildings that housed steam equipment, now used for storage.



Diesel engine capacity enough to generate 2,675 kw is in this engine room.

Wahoo Pioneers in Power

One of Nebraska's first cities to provide power municipally notes the expansion of this service

By E. J. ERICKSON
City Clerk
Wahoo, Nebr.

IN THE sisterhood of states, Nebraska is a pioneer in municipal ownership of public utility services. In Nebraska the City of Wahoo is a pioneer in the same movement.

When the citizens of Wahoo desired electric service in 1908, they voted $15,000 worth of bonds and proceeded to build their first plant, which used steam engines as prime movers.

A municipally owned water system had been acquired previously, and when operation of the new electric system was started in 1909, the management of the two departments was combined under one committee of the City Council, who employed a light and water commissioner for the administration and operation of the two departments. This system has proven efficient and is still used.

The first 20 months of operation firmly established the new enterprise and earned the city a gross income of $7,632.31 from a group of customers which had grown to 276 at the end of that period.

From this time on the growth was steady. As electrical service was pioneered, the public became increasingly educated in its use and new appliances became available.

The original generating equipment of the plant consisted of two hand-fired boilers, one Erie City (150 kw), and one Ideal (75 kw) high-speed steam engine. The first addition to this equipment was a Corliss 175-kw unit. In a few years the Ideal unit was outgrown and was replaced with a Skinner Unaflow unit of 300-kw capacity. In 1930, the Erie City and Corliss units were replaced with a steam-turbine unit rated at 750 kw.

Changed to Diesel in 1936

In 1936, when it again was necessary to increase capacity, it was decided to change to diesel-engine generation. Two Busch Sulzer Bros. diesel engines, each of 500-kw capacity, were purchased. These were direct-connected to General Electric alternators and exciters. The steam equipment was held in reserve. A new, larger building was erected to house the diesel equipment and provide room for further expansion.

In 1940 a used McIntosh and Seymour 550-kw unit was added, and in 1946 a new Busch-Sulzer 1,125-kw super-charged unit was purchased, the

the installation of which has recently been completed.

The old steam equipment has been disposed of and the space is being used for electric and water department storerooms.

To get a more definite picture of the growth of this city-owned enterprise it might be well to summarize it by means of a few statistics:

	1909	1947
Number of customers	276	1,250
Generating capacity	300 hp	3,900 hp
Gross revenue	$7,632.31	$103,617.26

In addition to serving the city of Wahoo, the system supplied the villages of Weston and Malmo and a part of the Butler County REA with energy under wholesale contracts.

In lieu of taxes, energy for public lighting is supplied free of charge. This energy is metered and production is credited for it, but no charge is made to the public. All equipment and extensions are paid out of earnings, and no burden had ever been placed on the taxpayer.

Another interesting item is the matter of rates. At the start of operations in 1909, rates were as follows:

Commercial

1st 25 kwh	15c
2nd 25 kwh	13c
3rd 25 kwh	12c
All over 75 kwh	10c

Residence

1st 10 kwh	15c
All over 10 kwh	10c

The 1947 rates are as follows:

Commercial

1st 40 kwh	6½c
Next 60 kwh	4c
Next 500 kwh	3c
Next 400 kwh	2½c
All over 1,000 kwh	2c

Residence

1st 40 kwh	6c
All over 40 kwh	2c

As a result of good management, an enterprise starting with an investment of $15,000, long since retired out of earnings—has grown to an institution having a depreciated actual value of $385,050. The system, besides furnishing service at cost to its citizens, has an annual payroll of $37,500 which stays at home and helps build Wahoo.

Sufficient funds were on hand to meet the payments on the most recent unit added, and the outlook for the future is indeed bright.

Wahoo is a city of 3,500 people located on three railroads and within an hour's drive of Lincoln and Omaha. It has several industries and recently received inquiries from others who are studying decentralization.

California Sales Taxes Prove Profitable

CALIFORNIA residents will contribute nearly $25,000,000 to the support of city governments through municipal sales and use taxes during fiscal years ending in 1948, according to a report on city sales taxes recently issued by the California State Board of Equalization.* As of January 1, 1948, local sales taxes had been imposed in 83 cities and were under consideration in half a dozen more. In 67 cities the local tax is levied at the rate of ½ of 1%, but in 16 cities a 1% tax is levied. The sales tax was first adopted for municipal use by New York City in 1934. It was not used in California until 1945, but has spread more rapidly there than in any other state.

The study indicates that a ½ of 1% city sales tax may produce revenue equivalent to that derived from 40 to 60 cents in the local property-tax rate. The fact that most of the advantages of property-tax curtailment resulting from city sales taxes is enjoyed by residents of the city, whereas a portion of the revenue is contributed by persons living outside the corporate limits who shop in the city, has undoubtedly enhanced the popularity of the tax among local electorates and their councils.

Food Not Taxed

No city has attempted to tax any sales which are not subject to the state sales tax. The principal state tax exemptions are those on sales of food not served on the premises; sales of gasoline on which motor vehicle fuel tax has been paid and is not subject to refund, and sales of gas, electricity, and water.

Wide variations were found in the per-capita yield of local sales taxes. The principal factor determining yield at a given rate of tax appears to be the size of the trading area served by the city levying the tax. The highest per-capita yields occur in cities surrounded by rural areas from which retail customers come to ship. The lowest yields are those of cities lying close to the more diversified shopping areas of the metropolitan centers.

* "City Sales Taxes in California," by Division of Research and Statistics, State Board of Equalization, Sacramento, Calif. Mimeo. 21 pp. 1948.

Planning Studytours Announced For United States and Europe

AN unusual opportunity for first-hand study of contemporary urban planning and development in the United States is offered by a Studytour which may be taken for academic credit through the summer session at Columbia University, July 6 to August 14. Co-sponsored by World Studytours and the Planning and Housing Division of the School of Architecture, the tour will be made by private automobiles and may be taken for 6 points of credit toward a degree.

The itinerary will include Philadelphia, Baltimore, Greenbelt, Washington, Williamsburg, Richmond, the TVA, Knoxville, Cincinnati, Louisville, Chicago, Milwaukee, Detroit, Toledo, Cleveland, Buffalo, Albany and New York City. Many suburbs and special developments will be visited within the metropolitan areas.

Accommodations en route will be at hotels and special lodgings. Fee for the tour is $290 plus a $7 University fee. Expense of meals will be paid separately by members of the Studytour. Registration will be July 1 to 3, although applications with a $25 deposit should be paid before June 1 to assure reservations. Additional information may be obtained from Professor J. Marshall Miller, 504 Avery, Columbia University, New York 27, who will act as director of the tour.

Announcement has also been made by World Studytours of another European Reconstruction and Physical Planning Seminar similar to the one successfully conducted last year. Intended primarily for specialists and advanced students in the regional and community planning, housing, and architectural fields, the 5½ week itinerary in Europe will cover England, Czechoslovakia, Poland, and Sweden — countries revealing well-defined but widely differing approaches to reconstruction, town and country planning and building.

Trip Takes 54 Days

Herman H. Field, Director of Building Plans for Cleveland College, the Downtown Center of Western Reserve University, will again serve as leader of the travel seminar. Over-all cost for the 54 days, New York to New York, covering all living and travel expenses, will be $1,275. The group will leave by boat July 16. All intercountry travel in Europe will be by air. Further information can be obtained from World Studytours, Columbia University Travel Service, New York 27.

Public Servants' Week to Focus Attention On Need for Better Citizen Understanding

AN ALL-OUT drive to publicize the observance of the first "Public Servants' Week," from June 7 to 12, is being conducted by the American Federation of State, County, and Municipal Employees, the sponsoring organization. Through this observance, the Federation hopes to provide the basis for better understanding by all citizens of the problems of state, county, and municipal government. The purpose of the week is to focus public attention on ways and means of providing more efficient public service.

A number of prominent city officials and administrators have already endorsed the program. The support and cooperation of other municipal and civic groups is being sought and welcomed by the Federation.

Beginning with the February issue of the *Public Employee*, official magazine of the Federation, and running through the June issue, the back page is being devoted to a two-color promotional advertisement for Public Servants' Week. The advertisements are appearing under the title "The Miracle of Public Service." Their emphasis is on the contribution of the public servant to the efficient operation of government. They are being reproduced on show-card stock in color, and are of a size that can be posted on bulletin boards and placed in windows. As of April 1, more than 30,000 printed folders describing Public Servants Week had been distributed, and more than 10,000 placards were on display.

Locals of the Federation have been asked to aid in organizing community programs during the week to emphasize the importance to each citizen of the services of government he depends upon and which are supported by his tax dollars.

A pilot effort along these lines, which other public-employe union locals are expected to emulate, is the publication of the study "What Your Taxes Buy!—A Survey of Municipal Services Added to the Government of Madison, Wis., from 1900 to 1948." * The study's aim was to find out, in terms of one city, what the oft-complaining taxpayer gets for his money. "It is difficult to believe," declared City Manager Leonard G. Howell, after reading the details of the survey, "that in this period of time over 250 new and additional services were added to the municipal program of activities. Yet this is exactly what happened."

The introduction to the study points out that in 1900 Madison was a quiet, sedate little city of 19,000 people who paid a tax rate of 20 mills on property with an assessed valuation of $8,499,909. The taxes collected on that property in 1900 amounted to nearly $170,000. In 1947 Madison was a bustling city of nearly 80,000 people who paid a tax rate of 33 mills on property with an assessed valuation of nearly $170,000,000. Its operating budget for 1948 was nearly $3,500,000.

Applicability of the Madison study to the situations in other municipalities was among the items discussed at the Federation's annual convention in Boston, April 26 to 30.

* Available from the American Federation of State, County, and Municipal Employes, Federation Building, Madison 1, Wis., at 25 cents per copy.

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The
MIRACLE OF PUBLIC SERVICE
PUBLIC SERVANTS WEEK
June 7-12, 1948
American Federation Of State, County, And Municipal Employees

This advertisement, from the April issue of *The Public Employee*, is one of a series that were printed on cardboard and used in local displays.

New Scientific Plumbing Code for Local Adoption

DRAFTS of a proposed uniform plumbing code for housing, developed to facilitate the standardization and improvement of plumbing systems, have been sent to groups in the construction field and urban localities for comment. The code was developed by a Uniform Plumbing Code Committee established by the Housing and Home Finance Agency. The committee included government officials and labor and management representatives of the plumbing industry.

Its recommendations for uniform requirements are based upon authentic test data obtained by setting up plumbing installations with transparent plastic piping to permit study of the discharge and flow characteristics in pipes, traps, and vents. Pictures made of the action and the results of the tests have been incorporated into a film, "Towards a Uniform Code," which will be available from the HHFA to groups interested in plumbing-code improvements.

Heretofore, because of lack of complete scientific knowledge about the functioning of plumbing systems, a wide variety of requirements has developed in municipal codes throughout the country which impose burdens on the plumbing industry and result in higher cost to the consumer. The new code should make it possible for local governments to revise their former codes to adhere to technically established principles.

Zoning and Planning Notes

Edited by NORMAN WILLIAMS, JR.
With the assistance of Frank B. Williams and Edward M. Bassett

Catholic Church and School Units

INDIANA. *Board of Zoning Appeals* v. *Wheaton*, 76 North Eastern (2d) 597 (Indiana Appellate Court, January 9, 1948).

In Indianapolis a Catholic church and a school were planned—in accordance with the allegedly almost universal practice in that Church—as a complete unit, including also a priest's mansion, a convent, and facilities for off-street parking. In the zoning regulations for the dwelling-house district involved, a dwelling, a church, a community center, and a "grade or high school with no living quarters maintained and not operated for pecuniary profit' would be permitted. In accordance with the procedure described in the ordinance, the Board of Zoning Appeals granted a variance for construction of the whole unit, with a finding that the project would substantially serve public convenience and welfare and would not injure appropriate use of neighboring property. On an appeal taken by neighboring landowners, the lower Court upheld the Board in most respects, but denied permission for construction of the convent on the ground that it would violate the zoning ordinance. The Indiana (intermediate) Appellate Court reversed and approved construction of the whole unit.

In the opinion, the convent was held to be a component part of the project for a church and school, and so not forbidden by the ordinance as a school with living quarters maintained.

> "We are of the opinion that a convent or 'sisters' home' must be considered an integral part of any Roman Catholic church project, which is composed of four component parts, viz: church, priests' mansion, a 'sisters' home,' and school.'

In this holding, the opinion relied upon the *Keeling* case (69 North Eastern (2d) 613, and on an older Oregon case (involving restrictive covenants) which included a strong statement that convents were built as much for church purposes as a church itself. Moreover, it was also held that, if the project was forbidden by the literal wording of the ordinance, the variance was justified on the ground of practical difficulties and unnecessary hardships.

Land Acquisition for Parks Outside Village Limits

MICHIGAN. *Village of St. Clair Shores* v. *Village of Grosse Pointe Woods*, 29 North Western (2d) 860 (Michigan Supreme Court, December 3, 1947).

The Michigan Constitution and statutes authorize any village to acquire land for, and to establish, parks and other municipal institutions either within or outside the village limits. The "land locked" Village of Grosse Pointe Woods agreed to buy a 43-acre tract of land, situated on the shore of Lake St. Clair within the village limits of the Village of St. Clair Shores, and began to establish a park and bathing beach there. The Village of St. Clair Shores objected and brought an action for an injunction, on the ground that no village could violate the sanctity and local self-government of another village, and that this project would create a nuisance by increasing traffic and injuring the health of the bathers. In answer, the Village of Grosse Pointe Woods claimed the right (subject to reasonable police regulations) to establish the park and the beach without the consent of the adjacent village; but a further claim of a right to exclude the inhabitants of the latter village from the beach was withdrawn at the trial. The lower Court dismissed the action, and the Michigan Supreme Court affirmed.

The constitutional and statutory provisions covering establishing a park outside a village admittedly made no mention of consent of the other village, and the Michigan Supreme Court held that a village's powers were therefore not limited by a requirement of such consent:

> "If such consent were to be required presumably it would have been so provided in the quoted constitutional provision. . . ."

While the establishment of a park involving a nuisance might invade the rights of a municipality in which it was located, in this case the defendant village conceded that the park would be subject to regulations, and ample provision was also made for off-the-highway parking. An apparently contrary dictum in *Jones* v. *City of Detroit*, 277 Michigan 272, 269 North Western 171 (1936), was limited to the garbage-disposal situation there involved, which was obviously more apt to create a nuisance. Moreover, a provision in the charter of the Village of St. Clair Shores for discontinuing parks was held to apply only to parks established by that municipality.

Condemnation for Playgrounds

OHIO. *Payne* v. *Deercreek Local Board of Education of Deercreek Township, Madison County*, 76 North Eastern (2d) 734 (Ohio Court of Appeals, Madison County, June 6, 1947).

A public school in Lafayette, Ohio, with 135 children, owned a quarter-acre piece of land for playground purposes; and for years successive owners of an adjacent one-acre tract permitted its use for a playground for the school children. One Payne bought the land, enclosed it with a fence, and kept 80 hogs in hutches there. The School Board decided to acquire the land, and, after unsuccessful negotiations with the new owner, instituted eminent domain proceedings. In an action to enjoin these proceedings, the owner alleged that the land was not being acquired for the public welfare, that it would not be adequate, and that the Board was acting in bad faith—and also testified that he would be willing to permit the children to use the premises for playgrounds, in their existing condition.

The Court held that public playgrounds would serve a public purpose, and the other questions in the case were dismissed as insubstantial.

Apartments as "Residential" Buildings—Covenants

VIRGINIA. *Jernigan* v. *Raffs*, 45 South Eastern (2d) 886 (Virginia Supreme Court of Appeals, January 12, 1948).

Covenants on land in a residential subdivision in Norfolk provided that "only one residential building . . . shall be erected on any lot." Moreover, in a conveyance of one lot by the owner of another lot across the street, an additional restriction was included that "the use of the land shall be restricted to residential purposes." Ninety one-family and two duplex houses were built in the subdivision, but the zoning (Residential B) also permitted apartment houses. When a one-story four-family apartment house was planned on a corner lot (140 by 90 feet), with a design rather similar to the other buildings, several nearby owners sought to enjoin its construction. The lower Court thought the covenant indicated an intent to establish a high-class one-family residential district and granted the injunction. The Virginia Supreme Court reversed, by a vote of four to three.

The Virginia Court adopted the rule of strict construction, following the most recent statement in the *Schwarzschild* case (186 Virginia 1052, 45 South Eastern (2d) 152, discussed in THE AMERICAN CITY for February 1948). The Court then held that the projected apartment house was a "residential building,' and also that use of land for this type of an apartment constituted use for "residential purposes only." It was pointed out that covenants aimed to protect one-family districts are generally quite explicitly worded to cover that. As for plaintiff's argument that under the same theory a residential building might be a huge 10-story apartment, involving a considerable corps of servants, the Court pointed out quite rightly that this case presented no such question.

In the dissent, it was argued by three Justices that maintenance of any apartment house is a use of land for business purposes, and that in this connection all apartments should be treated alike regardless of size. The interpretations of the word "residential" in other opinions (cited by the majority), arising from other situations and in other cities, were said to have no relevance in determining intent in the case.

See also "Cities, Not Courts, Should Provide Traffic Solution," by Norman Williams, on page 127.

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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Aircraft—Ordinance Prohibiting Low Flights Over and Landing on Lake

Where defendant was convicted of landing an aircraft on lake in violation of city ordinance prohibiting such landing or flying aircraft at altitude of less than 1,000 feet above the waters of lake, held that such ordinance is not unconstitutional but is a valid police-power measure to protect health of citizens by preventing pollution of lake water, even though lake is located outside of city. *City of Shreveport* v. *Conrad*, 33 So. (2d) 503 (La., Dec. 15, 1947).

City Officers—Bonds—Recovery Against Sureties—Separate Liabilities For Each Term of Office

In action against surety on bond of city tax collector, held that renewal of bond for each of eight years tax collector held office constituted separate contracts and subjected surety to liability for full amount of bond for each year and not merely for amount of bond for one year. *City of Middleboro* v. *American Surety Co. of New York*, 2075 W. (2d) 328 (Ky. App., Dec. 5, 1947). *Mod. on Reh. den.* Jan. 20, 1948.

City Treasurers—Delinquent Taxes—Right to Sue in Other States Denied

Where City of Detroit treasurer sought to recover personal property tax in Pennsylvania court, held that city charter limited treasurer to bringing actions in circuit court for Wayne County, Mich. *City of Detroit* v. *Girard Packing Company*, 56 Atl. (2d) 263 (Pa. Super. Ct., Jan. 8, 1948).

Contracts—Mandamus to Compel Mayor's Signature When Contract Valid Without

In mandamus to compel mayor to sign contract for water-main construction, held that where contract was valid without such signature, writ of mandamus would not be allowed. *Demos Bros., General Contractors*, v. *Mayor of Springfield*, 76 N. E. (2d) 169 (Mass., Dec. 9, 1947).

Firemen—Working Hours—Interpretation of What Constitutes

Where statute restricted working hours of firemen to 72 hours per week, held that work is not restricted to actual physical employment but also includes hours when firemen may sleep while on duty. *Nalley* v. *Throckmorton, Chief of Little Rock Fire Department*, 206 S. W. (2d) 455 (Ark., Dec. 16, 1947).

Garbage—Charges for Collection To Discharge Revenue Bonds—Mandamus

Where city failed to meet principal or interest payments on revenue bonds issued to construct incinerator, held that mandamus would lie to compel the collection of sufficient charges to discharge contractual obligations represented by such bonds. *State ex rel. Klostermeyer* v. *City of Charleston*, 45 S. E. (2d) 7, (W. Va., Oct. 7, 1947).

Intoxicating Liquors—Number of Licenses Based on Population—Increase in Since Last Federal Census

Where statute authorized state board to issue on-sale liquor licenses in the ratio of one to every 1,000 of population, population to be determined by latest federal census, held that issuance of increased number of licenses would not be set aside where investigation of population showed increase since last federal census as intent of act was to permit additional licenses where population increased. *City of San Diego* v. *State Board of Equalization*, 186 Pac. (2d) 166 (Cal. App., Nov. 19, 1947).

Labor Unions—Authority of City To Contract With Denied

In declaratory judgment action as to power of city to enter into collective-bargaining contract with labor unions representing city employees, held that the state constitutional provision that employees shall have the right to bargain collectively through representatives of their choice does not apply to city employees whether engaged in proprietary or corporate capacity. *City of Springfield* v. *Clouse*, 206 S. W. (2d) 539 (Mo., Nov. 10, 1947).

Labor Unions—Policemen—Validity Of Rule Prohibiting Membership In

In action for declaratory judgment that rule of Board of Police Commissioners of City of St. Louis forbidding policemen to become members of labor unions was unreasonable and void, held that such rule is valid and does not violate guarantee of freedom of speech or assembly, due process, or rights to liberty. *King* v. *Priest*, 206 S.W. (2d) 547 (Mo., Nov. 10, 1947). *Reh. den.* Dec. 8, 1947.

Milk—Establishment of Condition of Issuing Permit Under Non-Existent Standard—State Rating Method

Where city refused to issue permit for sale of milk in city on ground that ordinance required showing of 90% rating by state control agency of milk pasteurized outside city, held that such ordinance was invalid as imposing an arbitrary condition under a non-existent standard, since state agency did not use rating method. *City of Electra* v. *Carnation Company of Texas*, 207 S. W. (2d) 192 (Tex. Civ. App., Dec. 5, 1947). *Reh. den.* Jan. 9, 1948.

Noise—Validity of Ordinance Prohibiting Use of Machines During Certain Hours

In action to enjoin building contruction in City of Miami Beach, held that ordinance of city prohibiting use of machines making noise during certain hours of weekdays and during all hours of Sunday is not per se unconstitutional. *Singer* v. *Ben How Realty Inc.*, 33 So. (2d) 409 (Fla., Jan. 20, 1948).

Pensions—Inclusion of Service in Armed Forces Prior to Joining Fund

Where statute provided that service in armed forces shall be credited toward service in municipal employees' pension fund, held that such service performed prior to becoming member of fund was not to be included in computing three years' service required for pension eligibility. *Thigpen* v. *City of Atlanta*, 45 S. E. (2d) 695 (Ga. App., Dec. 3, 1947). *Reh. den.* Dec. 15, 1947.

Pinball Machines—Power of City To Forbid Maintenance and Operation

In action to have ordinance forbidding operation of pinball machines declared invalid, held that such ordinance does not violate guaranteed constitutional property rights. *Wallace* v. *City of Cartersville*, 45 S. E. (2d) 63 (Ga., Oct. 15, 1947). *Reh. den.* Nov. 14, 1947.

Refunding Bonds—Redemption Before Maturity—Impairment of Contractual Obligations

In action to enjoin issuance of refunding bonds, held that such bonds issued at lower interest rate and containing no provision for redemption before maturity, constituted impairment of contractual obligations. *Martin* v. *Mayor and Board of Aldermen of Town of Westwego*, 32 So. (2d) 711 (La., July 3, 1947). *Reh. den.* Nov. 10, 1947.

Sewers—City Liability for Explosion Of Gas in House Basement

In action for injuries caused by gas explosion, held that evidence was insufficient to take question of city's negligence in constructing sewer and causal connection with explosion in basement of house to jury. *McGough* v. *City of Fulton*, 205 S. W. (2d) 547 (Mo., Sept. 8, 1947. *Reh. den.* Nov. 10, 1947.

Sidewalks—Snow and Ice Accumulations—Notice to City—Injuries Received Through Fall

Where snow and ice accumulations had existed from 10 days to 2 weeks, held that city had constructive notice of defect and was liable for injuries received in fall on sidewalk. *Woodring* v. *City of Duluth*, 29 N. W. (2d) 484 (Minn., Oct. 31, 1947).

Streets—Vacation of as Causing Special Injury to Church

Where street was vacated by city, thereby causing special injury to members of church whose most available means of access to and from church was thereby impaired, held that such vacation is void and would be set aside. *Bethel Methodist Episcopal Church* v. *City of Greenville*, 45 S. E. (2d) 841 (S. C., Dec. 29, 1947).

Taxicabs—Use of Streets For Cab Stands Prohibited

Where ordinance of town prohibited taxicabs from using streets for cab stands and required securing of private property for such purposes, held that ordinance was not invalid as unreasonable or discriminatory. *Spoone* v. *Mayor and Aldermen of Town of Morristown*, 206 S. W. (2d) 422 (Tenn., Dec. 6, 1947).

Taxicabs—Validity of License Fee—Financial Responsibility

In action to enjoin enforcement of certain provisions of city taxicab ordinance, held that $75 annual license fee exacted by city of 3,000 population, and requirements that financial responsibility statements be filed with city and names of owners or operators be painted on sides of taxicabs were not unreasonable, arbitrary or oppressive. *Beavers* v. *City of Williamsburg*, 206 S. W. (2d) 938 (Ky. App., Dec. 16, 1947).

Trailer Camps—Regulations of Board of Health in Conflict With Sanitary Code

Where County of Franklin Board of Health regulations required trailer camps to provide water-flushed toilet for each 10 units in camp, held that such regulation was in conflict with special statute authorizing sanitary regulations which permitted "proper location and construction" of privies. *State* v. *Hess*, 76 N. E. (2d) 300 (Ohio App., Franklin Co., Oct. 20, 1947). *Reh. den.* Nov 17, 1947.

Trucks—Ordinance Prescribing Route Through City—Validity Upheld

In action to restrain enforcement of ordinance requiring commercial motor carriers passing through city to follow prescribed route, held that such ordinance was valid and not discriminatory. *Blumenthal* v. *City of Cheyenne*, 186 Pac. (2d) 556 (Wyo., Nov. 18, 1947).

Removal of Female Married Teachers

Where policy of board of education was to remove female teachers upon their marriage, held that such action was unreasonable and arbitrary in view of state statute creating tenure based on merit. *State ex rel. Wood* v. *Board of Education of the City of St. Louis*, 206 S. W. (2d) 566 (Mo., Dec. 8, 1947).

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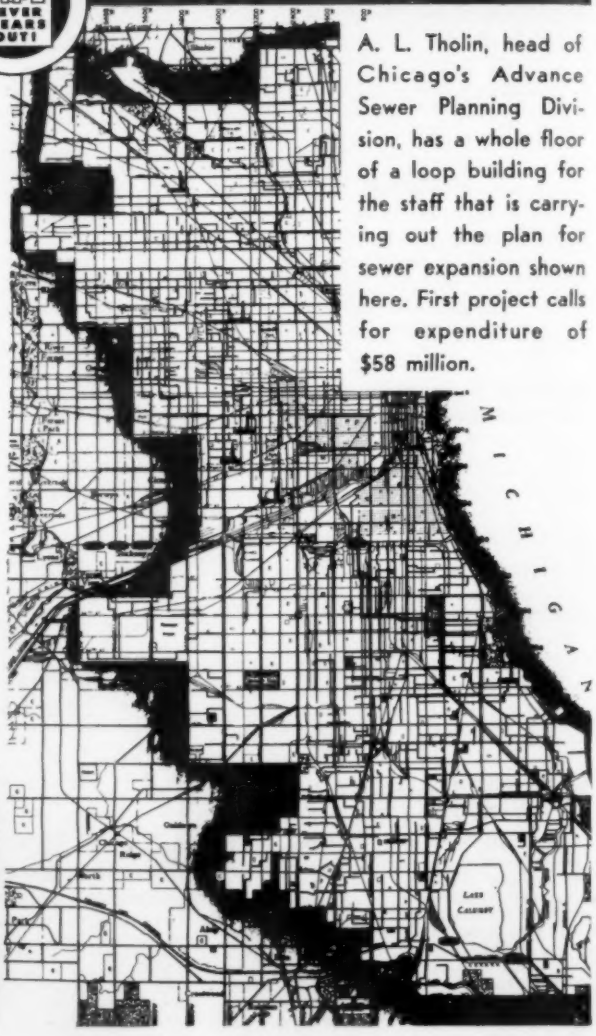

A. L. Tholin, head of Chicago's Advance Sewer Planning Division, has a whole floor of a loop building for the staff that is carrying out the plan for sewer expansion shown here. First project calls for expenditure of $58 million.

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Recent City Manager Appointments

LEROY BARTLETT, director of public works of Hamilton Ohio, has been appointed manager of Montpelier, Vt.

JOHN N. BALCH has been appointed first manager of Kennebunk, Maine.

HOWARD J. CHARLES, manager of Oakland, Maine, from 1938, has accepted the managership of Madison, Maine.

OLIVER D. COMSTOCK, formerly government analyst of the Detroit Bureau of Municipal Research, has been appointed at Bangor, Maine.

ROBERT L. COOPER, manager of Albuquerque, N. Mex., 1926-31, Port Arthur, Texas, 1932-37 and from 1945, has accepted the managership of Clovis, N. Mex.

C. HAROLD FASH, finance commissioner, has been appointed at Brookfield, Ill.

JOHN H. FERNS has been appointed first manager of Woodland, Calif.

F. B. GARRETT is first manager of Lindsay, Okla.

HENRY F. GOODNOW, administrative assistant at Pontiac, Mich., for the past two years, has been appointed first manager of Keene, N. H.

J. H. GOULD, acting manager since January 1, has received the permanent appointment at Decatur, Ga.

GEORGE HEIN, manager of Leighton, Pa., since 1945, has been appointed first manager of Oakmont, Pa.

JOHN IMMEL, manager of Northampton, Pa., since 1936, has been appointed at Lewiston, Pa.

THOMAS V. KENNEDY, city comptroller, has been appointed manager of Yonkers, N. Y.

ROBERT E. LAYTON, manager of Barre, Vt., from June 1946 to date, has been appointed at Randolph, Vt.

WALTER P. LEMKE, manager of Lincoln, Maine, since 1943, has been appointed first manager of Farmington, Maine.

ROGER W. MACDONALD, former manager from February 1944 to December 1946 and since that time manager of the gas and electric department, has been reappointed manager of Middleboro, Mass.

JAMES P. MCPHERSON, a former state highway engineer, has replaced R. B. Meserve as manager of Melbourne, Fla.

LIONEL MERRILL, manager of Guilford, Maine, from 1943 to 1947, has been appointed first manager of Sangerville, Maine.

RALPH S. MITTENDORF, manager of Ironton, Ohio, 1941 to 1947, has been appointed first manager of Bath, Maine.

PAUL G. OSTERHOLM of Omaha, Nebr., replaces Robert C. Hutchinson as manager of Shenandoah, Iowa.

LAURENCE PEABODY, former manager of Limestone and manager of Dyer Brook and Oakfield, Maine, since April 1, 1947, has been appointed at Dover-Foxcroft, Maine.

MILLARD F. QUIMBY of Corinna, Maine, has been appointed manager of Dexter, Maine.

C. W. REID, JR., has succeeded Riley Milam as manager of Cartersville, Ga.

JAMES F. SHURTLEFF, manager of Mansfield, Mass., 1943-47 (except for army service), and at Brookfield, Ill., since August 1947, has been appointed first manager of Saugus, Mass.

LUCIEN TOUPIN, formerly city clerk, has been appointed first manager of St. Laurent, Quebec.

LEROY TRAFTON, city clerk of Mankato, Minn., was appointed at Sylvan Lake, Mich.

W. T. WILLIAMSON, manager of Apex, N. C., 1941-44, and of Bloomfield, Conn., since 1944, has been appointed at East Detroit, Mich.

J. D. WILLSON, former member of state highway department, has been appointed manager of Lamesa, Texas, succeeding G. M. Roberts, who died in January.

CLARENCE E. RIDLEY
Executive Director
International City Managers Association

Planning Commission Defines 'Guest House'

TO aid in making and carrying out zoning ordinances, the Laguna Beach (Calif.) Planning Commission has adopted an official definition of the term "guest house." The definition, prepared by a group of local architects, is expected to be adopted by other communities as well. It reads:

A guest house shall be a detached, one-story accessory building, used exclusively for the guests, the servants, or members of the family occupying the main building on the same lot and containing no kitchen and having no more than 300 square feet of floor area and no separate utility meters.

A guest house shall contain no more than one bedroom, one bath, and one clothes closet. There shall be no plumbing fixtures or facilities of any kind whatsoever in said guest house except in the bathroom, and no plumbing shall be roughed in for facilities of any kind anywhere except in the bathroom. No such guest house may be rented, let out or hired out for occupancy for compensation whether the compensation be paid directly or indirectly. Only one guest house shall be permitted on the building site.

Planning Director Sought By Oshkosh, Wis.

A planning director is being sought by the City of Oshkosh, Wis., to prepare and promote a comprehensive city plan. Experience in a responsible position with a planning commission is required, as well as a degree in a city planning course or civil engineering. A good personality and knowledge of economics and social conditions are characteristics especially desired. The position will be a permanent one, and the salary is to be arranged. Persons interested should write to Mayor E. R. Siewert, City Hall, Oshkosh, Wis.

Illinois Supreme Court Hands Down Favorable Redevelopment Decisions

TWO recent decisions of the Illinois Supreme Court ensure that local housing and redevelopment programs can go forward in that state with little danger of future adverse legal action. The decisions, both handed down on March 8, uphold the validity of the housing and slum-clearance bond issues of the City of Chicago, and the proposed non-profit municipal corporation for land-clearance purposes. Further information about these two major steps forward in the Illinois urban-improvement program may be obtained from the office of the Housing and Redevelopment Coordinator, 111 W. Washington St., Room 1523, Chicago 2, Ill.

Southern C. of C. Executives Meet

CONCLUDING its 40th annual convention at Oklahoma City on March 24, the Southern Commercial Secretaries Association elected Lester Rose, executive director of the Raleigh, N. C., Chamber of Commerce as its new president; George E. Schneider, manager of the Association of Commerce, New Orleans, first vice-president; J. Malcolm Bridges, executive vice-president of the Richmond, Va., Chamber, second vice-president; and Scott DeKins, secretary of the St. Louis Chamber, secretary-treasurer. A group of 275 secretaries and their wives attended the three-day convention, the host for which was the Oklahoma City Chamber of Commerce.

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Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

May 3-7—Atlantic City, N. J.
AMERICAN WATER WORKS ASSOCIATION. Annual Meeting (Convention Hall). Sec., Harry E. Jordan, 500 Fifth Ave., New York, N.Y.

May 10-13—Washington, D. C.
NATIONAL FIRE PROTECTION ASSOCIATION. Annual Meeting (Statler Hotel). Gen. Mgr., Percy Bugbee, 60 Batterymarch St., Boston, Mass.

May 12—Marlborough, Mass.
NEW ENGLAND SEWAGE WORKS ASSOCIATION. Spring Meeting (Marlborough Country Club). Sec.-Treas., Walter E. Merrill, 511a State House, Boston, Mass.

May 12-15—Boise, Idaho
AMERICAN WATER WORKS ASSOCIATION — Pacific Northwest Section. Sec., Fred Merryfield, Prof. of San. Eng., Oregon State College, Corvallis, Ore.

May 17-19—Colorado Springs, Colo.
AMERICAN PUBLIC POWER ASSOCIATION. Annual Convention (Broadmoor). Gen. Mgr., Carlton L. Nau, 1129 Vermont Ave., NW., Washington 5, D. C.

May 17-19—Newark, N. J.
AMERICAN PLANNING AND CIVIC ASSOCIATION. Annual Meeting (Essex House). Exec. Sec., Harlean James, 901 Union Trust Bldg., Washington 5, D. C.

***May 19-21—Nashville, Tenn.**
ASSOCIATION OF STATE PLANNING AND DEVELOPMENT AGENCIES. Annual Conference. Exec. Dir., Walter H. Blucher, 1313 E. 60th St., Chicago 37, Ill.

May 20-21—Spokane, Wash.
ASSOCIATION OF WASHINGTON CITIES. Annual Meeting (Davenport). Exec. Sec., Chester Biesen, Smith Hall, University of Washington, Seattle 5, Wash.

May 27-28—Boston, Mass.
AMERICAN SHORE AND BEACH PRESERVATION ASSOCIATION (Copley Plaza). Sec.-Treas., Peter J. Cannon, 1060 Broad St., Newark 2, N. J.

June 7-10—Denver, Colo.
MUNICIPAL FINANCE OFFICERS ASSOCIATION OF THE UNITED STATES AND CANADA. Annual Meeting (Cosmopolitan Hotel). Exec. Dir., Miner B. Phillipps, 1313 East 60th St., Chicago 37, Ill.

June 10-12—Denver, Colo.
COLORADO MUNICIPAL LEAGUE. Annual Meeting (Shirley-Savoy Hotel). Exec. Sec., Allen E. Pritchard, Jr., 327 Norlin Library, Boulder.

June 13-16—Uniontown, Pa.
PENNSYLVANIA STATE ASSOCIATION OF TOWNSHIP COMMISSIONERS. Annual Conference (Hotel Summit). Sec.-Treas., H. A. Fritschman, Upper Darby, Pa.

June 14-16—Faribault, Minn.
LEAGUE OF MINNESOTA MUNICIPALITIES. Annual Meeting. Exec. Sec., C. C. Ludwig, 15 University of Minnesota Library, Minneapolis.

June 15-17—Aberdeen, S. D.
SOUTH DAKOTA MUNICIPAL LEAGUE (Ward Hotel). Treas., J. G. Barger, P. O. Box 984. Aberdeen, S. D.

***June 17-19—Jamestown, N. Y.**
EASTERN ASSOCIATION OF FIRE CHIEFS. Annual Meeting. Exec. Sec., Charles E. Clark, Box 271, Wayne, Pa.

June 16-18—Long Beach, Calif.
CIVIL SERVICE ASSEMBLY OF THE UNITED STATES AND CANADA—Western Regional Conference. Chairman, F. R. Coop, Personnel Dir., Pasadena 1, Calif.

June 16-18—New York, N. Y.
NEW YORK STATE CONFERENCE OF MAYORS AND OTHER MUNICIPAL OFFICIALS. Annual Meeting (Commodore Hotel). Exec. Sec., Morgan Strong, 6 Elk St., Albany 7, N. Y.

June 18-19—Milwaukee, Wis.
CENTRAL STATES SEWAGE WORKS ASSOCIATION. Annual Meeting (Schroeder Hotel). Sec.-Treas., Paul W. Reed, 1098 W. Michigan St., Indianapolis, Ind.

June 20-26—Zurich, Switzerland
INTERNATIONAL CONGRESS FOR HOUSING AND TOWN PLANNING (Das Kongresshaus). Acting Sec. Gen., Morris H. Hirsh, International Federation for Housing and Town Planning, 13 Suffolk St., Haymarket, London, S.W. 1, England.

June 21-25—Salt Lake City, Utah
THE AMERICAN INSTITUTE OF ARCHITECTS. Annual Convention (Hotel Utah). Exec. Dir., Edward C. Kemper, 1741 New York Ave., NW., Washington 6, D. C.

June 21-28—Erie, Pa.
PENNSYLVANIA STATE ASSOCIATION OF BOROUGHS. Annual Meeting (Boat Trip). Sec., H. F. Alderfer, The Capitol, Harrisburg, Pa.

***June 23-25—Dayton, Ohio**
OHIO CONFERENCE ON SEWAGE TREATMENT. Annual Meeting (Dayton-Biltmore Hotel). Exec. Sec., G. A. Hall, 302 State Dept. Bldg., Columbus, Ohio.

***June 28-30—Sault Ste. Marie, Mich.**
MICHIGAN ASSOCIATION OF CHIEFS OF POLICE. Annual Meeting (Ohijway Hotel). Exec. Sec., E. B. Wilson, Detroit Leland Hotel, Detroit 26.

***July 1-3—Atlantic City, N. J.**
NATIONAL INSTITUTE OF CITY AND TOWN CLERKS. Annual Conference (Chalfonte-Haddon Hall). Sec., Philip P. Costello, City Hall, Perth Amboy, N. J.

***July 11-14—Toronto, Canada**
NATIONAL ASSOCIATION OF TAX ADMINISTRATORS. Annual Meeting (Royal York Hotel). Exec. Sec., Wm. G. Herzel, 1313 E. 60th St., Chicago 37, Ill.

July 16-24—Chicago, Ill.
AMERICAN ROAD BUILDERS ASSOCIATION. Road Show. Soldier Field. Engr. Dir., Charles M. Upham, 1319 F St., NW., Washington 4, D. C.

July 27-29—White Plains, N. Y.
NEW YORK STATE ASSOCIATION OF CHIEFS OF POLICE (Roger Smith Hotel). Sec., R. W. Morris, 215 State Tower Building, Syracuse.

July 31-Aug. 8—New York, N. Y.
INTERNATIONAL AIR EXPOSITION—Golden Anniversary. New York International Airport. Sec., E. F. McGrath, 1 East 60th St., New York, N. Y.

***Aug. 23-25—State College, Pa.**
PENNSYLVANIA WATER WORKS OPERATORS ASSOCIATION. Annual Meeting (Pennsylvania State College). Sec.-Treas., Ivan M. Glace, 1001 N. Front St., Harrisburg, Pa.

***Aug. 23-27—Milwaukee, Wis.**
NATIONAL SHADE TREE CONFERENCE. Annual Convention (Hotel Schroeder). Sec.-Treas., L. C. Chadwick, Dept. of Horticulture, Ohio State University, Columbus 10, Ohio.

***Aug. 25-27—State College, Pa.**
PENNSYLVANIA SEWAGE AND INDUSTRIAL WORKS ASSOCIATION. Annual Meeting (Electrical Bldg., Pennsylvania State College). Sec.-Treas., Bernard S. Bush, Kirby Health Center, Wilkes-Barre, Pa.

***Aug. 25-28—Logan, Utah**
UTAH MUNICIPAL LEAGUE. Annual Meeting (Eccles Hotel). Sec.-Treas., Lyla Ray, Newhouse Hotel, Salt Lake City 1, Utah.

Sept. 1-2—Winnipeg, Manitoba
AMERICAN WATER WORKS ASSOCIATION — Minnesota Section. Annual Conference (Royal Alexandra Hotel). Sec.-Treas., R. M. Finch, 416 Flour Exchange, Minneapolis 15, Minn.

***Sept. 8-11—Chicago, Ill.**
GOVERNMENT RESEARCH ASSOCIATION. Annual Convention (Congress Hotel). Sec., G. G. Tegnell, 30 Rockefeller Plaza, New York 20, N. Y.

***Sept. 9-11—Saranac, N. Y.**
COUNTY OFFICERS' ASSOCIATION, State of New York. Annual Meeting (Saranac Inn). Exec. Sec., Donald C. Scribner, County Bldg., Johnstown, N. Y.

***Sept. 10-11—Grand Forks, N. D.**
LEAGUE OF NORTH DAKOTA MUNICIPALITIES. Annual Convention. Exec. Sec., Myron H. Atkinson, P. O. Box 358, Bismarck, N. D.

***Sept. 14-15—Des Moines, Iowa**
IOWA SEWAGE WORKS ASSOCIATION. Annual Convention (Hotel Kirkwood). Sec.-Treas., Leo Holtkamp, P. O. Box 310, Webster City, Iowa.

***Sept. 15-17—Pittsburgh, Pa.**
PENNSYLVANIA STATE ASSOCIATION OF COUNTY COMMISSIONERS. Annual Convention (William Penn Hotel). Sec.-Treas., Herbert S. Bolger, Court House, Hollidaysburg, Pa.

***Sept. 16-17—Cheyenne, Wyo.**
AMERICAN WATER WORKS ASSOCIATION—Rocky Mountain Section. Annual Convention (Plains Hotel). Sec.-Treas., O. J. Ripple, 710 Colorado Bldg., Denver 2, Colo.

***Sept. 20-24—Boston, Mass.**
ILLUMINATING ENGINEERING SOCIETY. Annual Convention (Statler Hotel). Sec., A. D. Hinckley, IES National Technical Conference, 51 Madison Ave., New York 10, N. Y.

Sept. 21-24—New York, N. Y.
NEW ENGLAND WATER WORKS ASSOCIATION (Hotel Pennsylvania)). Sec., Joseph C. Knox, 609 Statler Bldg., Boston, Mass.

***Sept. 22-24—Reading, Pa.**
LEAGUE OF CITIES OF THE THIRD CLASS IN PENNSYLVANIA. Annual Convention (Abraham H. I. Baumes, 902 Travelers Bldg., Richmond.

***Sept. 26-28—Old Point Comfort, Va.**
LEAGUE OF VIRGINIA MUNICIPALITIES. Annual Convention (Chamberlin Hotel). Exec. Sec., H. J. Baumes, 902 Travelers Bldg., Richmond.

***Sept. 26-30—Atlantic City, N. J.**
AMERICAN TRANSIT ASSOCIATION. Annual Convention (Traymore Hotel). Gen. Sec., A. W. Baker, 292 Madison Ave., New York 17, N. Y.

***Sept. 26-Oct. 1—Omaha, Nebr.**
NATIONAL RECREATION CONGRESS. Annual Convention (Hotel Fontenelle). Sec., T. E. Rivers, National Recreation Association, 315 Fourth Ave., New York, N. Y.

***Sept. 27-30—Milwaukee, Wis.**
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. Annual Convention (Schroeder Hotel). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago, Ill.

***Sept. 30-Oct. 1—Sioux Falls, S. D.**
SOUTH DAKOTA WATER AND SEWAGE WORKS CONFERENCE. Annual Convention (Carpenter Hotel). Sec., W. W. Towne, Dir., Division of Sanitary Engineering, State Board of Health, Pierre, S. D.

***Oct. 3-6—Boston, Mass.**
AMERICAN INSTITUTE OF PARK EXECUTIVES. Fiftieth Anniversary. Annual Convention. Exec. Sec., David Hovey, Box 422, Rockford, Ill.

***Oct. 4-7—Buffalo, N. Y.**
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual Meeting (Statler Hotel). Sec., Irvin Shulsinger, International Municipal Signal Association, Inc., 11 W. 42d St., New York 18.

(Continued on Page 149)

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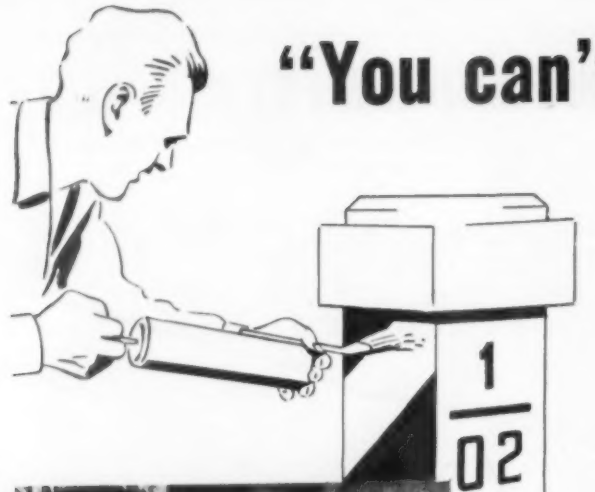

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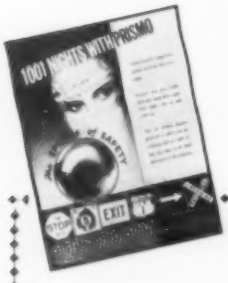

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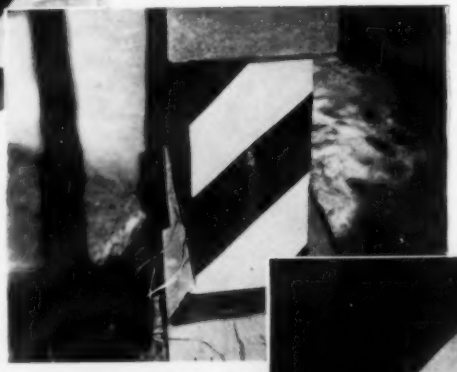

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Express Transit Streets to Speed All Traffic

A formula for increasing the trend toward mass transportation without bond issues, extra police, or a too-expensive construction job

By THEODORE CAPLOW, *Ph.D.*
University of Minnesota
Minneapolis, Minn.

IN THE larger cities, taxicabs are often forced to move more slowly than the pedestrians on the sidewalk. Meanwhile, most metropolitan areas grow, sending suburbs and subdivisions out into the country. More and more people pour into the central district to work, shop, and be entertained. More and more of them have cars.

The parking meters, the six-story garages, the fringe parking lots, the new expressways, the staggered traffic lights, the no-parking zones—all fail to change the general pattern sharply. The crisis of transportation threatens the entire scheme of urban living. The war checked it for a moment, reducing the number of cars and their uses, but it brought new populations to the cities, stepping up both in-migration and natural increase.

Now, as the new cars roll off the lines, with millions of customers ready and able to acquire automobiles and trucks not yet produced, the crisis of the cities grows more acute.

Some sort of breakdown will inevitably follow, unless a solution be found. And the solution cannot consist alone of new ways of concealing automobiles or speeding their movement. Every such step attracts more cars, restores yesterday's unstable equilibrium, defers utter confusion only a little longer.

Essentially the problem is simple. Here is a business district, containing so many square feet of space in streets, sidewalks, and vacant lots. Here is a population, using so many square feet of this space, as it circulates on foot, in cars, in streetcars, buses, and taxis.

Three Possible Remedies

There are only three things that can be done:

First, expand the usable space for traffic in the central district. This has been tried, and it is fabulously expensive. Such developments must work with land which may be worth as much as if it were gold-plated. Building and redevelopment itself are hampered by the necessity of working in the swirl of moving traffic. There are always more cars waiting to fill the newly available space than it will hold. And the growth goes merrily on!

Second, divert the people to other centers. This, too, is being done. But as the shopping centers and the satellite loops grow, they develop their miniature traffic patterns, their own blight and congestion. As long as the population moves in and out of a relatively fixed area, using more square feet per capita month after month, this will be no solution. A really successful diversion of people from the center would amount to the abolition of the city as we know it. There are those who advocate a return to small communities, neatly spaced out on an electric-power grid. It is theoretically perfect, and practically impossible. Cities, barring atomic disintegration, are here to stay in much their present form. Too much of our total stock of capital and goods is tied to the metropolitan pattern to throw it away. Too many activities are based upon the centralized city. Too many people like city life and what it has to offer.

A *third* possibility is to find some way to persuade people to abandon forms of transportation which require a great deal of space per person in favor of those requiring very little. Even more plainly, *it means a shift from private automobiles to public carriers for transportation in and out of the business district.* The saving of traffic space would be stupendous. In the morning rush, every three automobiles carry, on the average, five persons, who take slightly more room than a streetcar carrying 70 persons, or a bus carrying 50. But the streetcar and the bus take up downtown space only while actually carrying passengers. The three cars, parked on the street, in lots, or in garages, help to block traffic all through the working day.

The Case for Public Transportation

The shift to public transportation, if it comes, is not going to be the result of administrative regulation. Towns which attempt a solution by banning all parking in downtown areas are perhaps more realistic than those that build six-story garages. Certainly parking should be eliminated where and when it reduces the flow of traffic that would otherwise use the streets. The general welfare of the public is not served by making streets free parking garages if this restricts the traffic flow. The accessibility and prosperity of the centralized urban district might be substantially improved if it were possible to make public transportation much faster by removing its major impediments.

What of persuasive means? There are, in general, only a few reasons why people prefer one form of transportation to another—economy, speed, comfort, convenience (which is another way of describing speed).

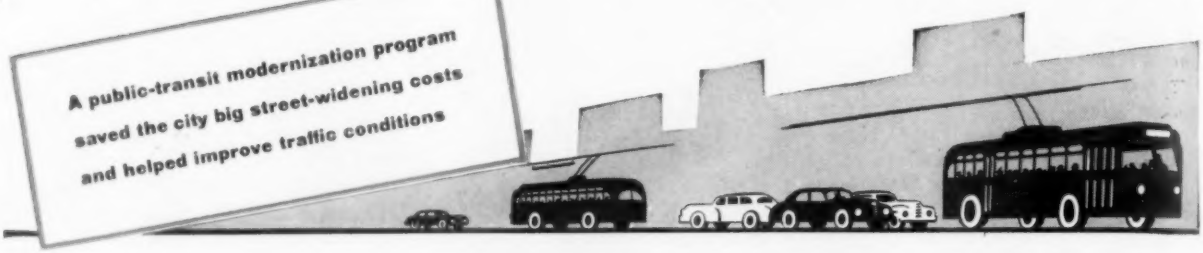
There are a few circumstances under which transportation by private car within the city is cheaper than by public carriers. When it is cheaper, it is only because of expenses involved in numerous short trips; the transit systems that have adopted the weekly pass system have done away with even these instances, in addition to cutting their operating costs.

Comfort is definitely an element, but it tends to be subsidiary to the time factor. Where considerable ordeals are involved, as in the older subways and in excessively over-crowded streetcars, comfort plays an important part in the

It might have cost Atlanta thousands of dollars to actually widen Peachtree Street just one foot

IT COST ATLANTA *nothing* TO 'WIDEN' 6 MAIN STREETS

A public-transit modernization program saved the city big street-widening costs and helped improve traffic conditions



MODERN PUBLIC TRANSIT VEHICLES 'PAVED THE WAY'

No sidewalks pushed back, no buildings torn down, yet Atlanta "widened" six main streets sufficiently to greatly reduce downtown traffic congestion.

According to civic traffic planning groups, business organizations, and service clubs, *public transit did the job.* Since last year, when the Georgia Power Company put many new trolley coaches and buses into service, traffic jams have shown a substantial decline. People and goods are moving faster, street capacity has expanded. It's almost as though extra lanes have been added to existing streets!

Here's why public transit is producing these big improvements. The transit vehicles offer service as comfortable and convenient as that of the automobile, but they use only 70 square feet of street space per passenger carried. (Compare this with the 500 square feet required per autoist!) For every person who uses public instead of private transportation, 430 square feet of street space is released to speed all traffic.

When Georgia Power improved service and purchased modern vehicles, Atlanta saw the results right away. Perhaps your transit company is considering similar modernizations. To help them make the money with which to pay for the improvements, encourage more of your citizens to ride by public transit. Not only will this increase transit's revenue, but it is the most practical means of reducing traffic congestion and assuring your city of better transportation at lowest cost. Apparatus Dept., General Electric Co., Schenectady 5, N. Y.

TROLLEY COACHES MAKE MONEY FOR TRANSIT COMPANIES

GENERAL ELECTRIC

107-219

selection of means of transportation. But convenience, which covers such things as the length of time the passenger waits for his bus on a cold street corner, and the difficulties of transferring from one line to another, is only an alternate way of reckoning speed.

Essentially, the choice of means of intra-urban transportation depends upon relative speed. It is believed that public transportation can be made consistently 30% to 50% faster, over a given distance at all hours of the day, than private cars. Doing this requires no reorganization, no bond issues, no lengthy delays for the delivery of new units, no extra police, no charter ammendments, no monster construction projects. All that it requires is a basis of cooperation among such groups as the city administration, the police force, the traction companies, the newspapers, and the public. In some communities this is a stiff order. In others, the necessary ingredients for working together are present and are only waiting to be used.

The Formula

1. Close to automobiles and trucks as public express-streets a number of streets leading from the city center in each direction, and also a smaller number of cross-town streets.

2. Re-route all bus lines to run only on the streets within five miles of the loop.

3. Some express streets will be one-way during rush hours; streetcars move two abreast; buses to the right or left of streetcar tracks, as required.

4. Express streets will carry both local and express traffic. On most express streets, streetcars will be local as far out as they extend; buses will be express, stopping every mile or every mile and a half; in some cases express and local streetcars might run side by side on a one-way street.

5. Start gradually, with one or two express streets to ease critical situations, and extend service in accordance with increased public demands.

6. Institute a weekly or monthly pass system, with passes good on all lines. This is already in use in many cities and will eliminate the time-consuming handling of fares and transfers.

7. Rearrange traffic signal systems to provide comparatively long green intervals on express streets. This increases the advantage of the public carriers by facilitating the loading and unloading of passengers.

8. Schedule higher speeds on express streets. The thesis is that autos, trucks, streetcars, and buses cannot operate efficiently on the same roadway. Automobile traffic slows mass vehicles by keeping them waiting short of loading zones; creating hazards for descending passengers; moving out of side lines; parking in the loading zones; blocking buses from the loading zones. But streetcars and buses slow automobile traffic by executing slow turns; loading and unloading passengers; over-waiting traffic signals while handling passengers; standing in lane while waiting on a schedule; blocking entrance and exit from parking places; making slow pick-up from stops in some cases; restricting of traffic to one lane; moving in and out (on the part of buses); creating passing difficulties; making frequent stops and slow pick-ups.

Normal traffic friction alone is enough to prevent swift operation. The vastly different sizes of vehicles account for numerous slowdowns. One stalled streetcar can delay half a dozen behind it during rush hours, which may delay a thousand cars and trucks.

The purpose of this plan is to give public carriers an advantage over private carriers, without slowing automobile traffic. The transfer of such traffic from express streets to other arteries, and the difference in traffic-signal time would tend to slow auto traffic, but the limitation of streetcars and buses to a few streets would have substantially the opposite effect.

While the capacity of an ordinary traffic street is soon reached under ordinary conditions, the capacity of an express street would be enormous. By running buses on the non-loading sides of a single-lane streetcar, for example, it should be possible to move two buses per minute along a city route at 25 miles per hour, loading included. This, in passenger miles per hour, is a mark that can only be approached by a four-lane country speedway.

The streets withdrawn from traffic would be those least suited to traffic, and any loss of customers to merchants along the route would be made up by the increased number of passengers moving along the street.

Parking is admittedly a problem. But parking along narrow main traffic arteries cannot be tolerated for very much longer in most cities. On very wide streets, it might still be permitted. In the central district, the net addition to parking space, by eliminating bus stops and safety zones on all streets except express streets, will make up the difference.

In terms of total economy for the community, the savings should be impressive. By decreasing their mileage and increasing their speed, traction lines will be cutting down two major per-capita costs: overhead and labor. At the same time, their total fares will increase. For the rider, the shift is from slow transportation at 5 cents per mile plus parking charges to faster transportation at 1 or 2 cents per mile.

Perhaps the major asset of the express-street plan is that it does not require any wholesale changes. Any city where the ingredients of cooperation are present can try it out on its worst street—the narrow, crowded lane where streetcars, buses, automobiles, trucks, and pedestrians fight a losing battle for space and time.

"Maybe we'd better put a nickel in it anyway."

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BLUE PRINT FOR *Better Living*

PICTURED above is a night view of Mt. Morris, Illinois —a good place to live, a place where you can see where you're going after dark.

Mt. Morris can boast of such qualities because, like Park Ridge, Aurora, La Grange and other northern Illinois communities, it enjoys the benefits of a modern street lighting system, that was scientifically planned *before* it was installed.

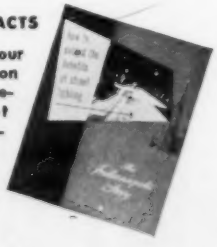
This method of pre-planning good street lighting, though not unique, has been perfected in this area through the joint efforts of local officials and electric utility companies. Briefly, it consists of (1) a thorough survey of needs—present and contemplated; (2) a realistic recommendation for improvements based on those needs — establishing priority for locations where new lighting is most needed; and (3) the provision of the right *amount* of light, uniformly distributed and properly arranged, combined with adequate maintenance.

Typical of the public enthusiasm that results is the comment of M. F. Dorothy, Chairman, Retail Merchants' Div., Aurora Chamber of Commerce: "(Our) modern street lighting has reduced traffic hazards and encouraged night window shopping. I consider well-lighted streets a MUST in any city building program."

To Public Service Co. of Northern Illinois, Western United Gas & Electric, Illinois Northern Utilities Co., and Commonwealth Edison belongs the credit for an outstanding job of public education, sound engineering and *service* that anticipates the needs of the people.

FOR MORE FACTS

To round out your file of information on current, noteworthy street lighting improvement projects, send today for "The Indianapolis Story".



The Street and Traffic Safety Lighting Bureau, 155 East 44th St., New York 17, N. Y.

Cities, Not Courts, Should Provide Traffic Solution

Cheyenne decided upon a through trucking route instead of requiring a railroad to build underpasses, and was sustained by the State Supreme Court

By NORMAN WILLIAMS, JR.

WYOMING. *Blumenthal* v. *City of Cheyenne*, 186 Pacific (2d) 556 (Wyoming Supreme Court, November 18, 1947).

THE main East-West line of the Union Pacific Railroad bisects the central retail business district and the East-West artery along 16th Street, and several blocks below the State Capitol. Central Avenue, the main north-south artery of Cheyenne, stops at the railroad tracks, and a connection is made by a viaduct with somewhat roundabout and narrow approaches. Great traffic congestion in the city has centered in the main shopping district just north of the tracks, and in particular the viaduct was often dangerous and slippery in winter. A large proportion of auto accidents occurred in the same area. After newspaper agitation, some pressure from truckers, and a traffic survey, a city ordinance established a mandatory through trucking route through the city.

Route Delimitation

The through north-south trucking route specified in the ordinance first turned right (from the north end of Central Avenue) and ran six blocks west across the northern boundary of the city, between a park and a few new residences, then along an avenue through first a residential and then a warehouse district, and then through an underpass and diagonally back to Central Avenue on the South side. The east-west route also ran across near the northern boundary and then followed the same avenue down to the tracks, when it turned west again. In a challenge to the constitutionality of the ordinance, property owners along the trucking routes alleged that running the route through residential areas was unreasonable and oppressive "vandalism," and that the trucks were a danger to their safety, caused nuisances by noise and fumes, and forced a depreciation in the value of their property without compensation. As alternatives, it was argued that the city should force the railroad to build underpasses or overpasses, or use several other streets suggested as being more suitable. The District Court pointed out that the underpasses would cost several million dollars and dismissed the action; and on appeal, this decision was affirmed.

In the opinion, the Wyoming Supreme Court first recognized the inconvenience and annoyance imposed upon the plaintiffs by the ordinance, and, in fact, admitted that, in a similar situation, the judges themselves have sought relief from the ordinance.

> In many if not most instances, congested traffic may be relieved by two or more methods. There is bound to be in such a case discrimination against some party or parties in choosing a particular method. Hence, the mere fact of discrimination cannot be held to be a criterion of legality. If it is necessary in a case of congested traffic for the courts to carefully scrutinize as to what is the best available method to relieve it, that would be equivalent to depriving city authorities of all discretion, and would substitute the courts as administrators of municipal affairs in that respect. But, that is not the law. It is not the province of the judiciary to set up its judgment against the city authorities as to the method or means adopted toward the accomplishment of a legitimate objective, unless clearly unreasonable. The method adopted need not necessarily be the best.

The method chosen here was then held to be a reasonable one. The municipality's power to acquire underpasses was held to be discretionary, and the Court expressly refused to hold that, as a matter of law and without any regard to the costs involved, a municipality must require a railroad to build an underpass in all cases where that might help congested traffic. As for the argument that the tracks involved a nuisance, the Court made a reference in passing to the role that the railroads had played in making the City of Cheyenne possible.

Various other contentions were passed on in the opinion, which ran on for fifteen double-column pages. Statutory provisions apparently forbidding municipal regulation of traffic were held to be the result of "the work of a thoughtless copyist" and were construed away. The powers over traffic in the City Charter, still limited to domestic animals and vehicles drawn thereby, were held to apply to modern forms of traffic including automobiles. The establishment of through trucking routes was held not to be necessarily exclusively a state rather than a municipal function. The differential classification permitting buses into the central part of the city was justified by the need to discharge passenger traffic there; and, in any case, plaintiffs were not in a position to challenge that provision. Finally, the adjoining property owners were held not to have standing to sue to enjoin this ordinance. The establishment of residential zones was held not to affect municipal control over the streets, which were dedicated to the general public.

"Still the establishment of such (residential) zone does not, directly at least, infringe upon or control the use of the streets therein."

The plaintiff's belief that no change would occur in their environmental condition was held to be a mistake commonly made in growing communities, and the whole development was considered as one of the less happy by-products of the progress of modern civilization.

The opinion, while generally clear and incisive, contains one interesting example of that judicial isolation from the real world which results from confining the consideration of a case to the written record submitted. The Court stated that the southern approach to the viaduct — situated about fifteen blocks from the Supreme Court building — "apparently" connects with Central Avenue in a specified manner. If the point was worth mentioning, one cannot but wonder why the judge could not have invoked the doctrine of judicial notice and either taken a stroll or sent a clerk down to look.

NEW CONVERTIBLE

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The new Model G PARK-O-METER is interchangeable for either cumulative or wipe-off time at the flick of a lever in the mechanism.

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Model G PARK-O-METER permits instant interchange of dials: short time, 1-hour or 2-hour. Also affords 24 coin-time combinations.

AUTOMATIC? Yes

Naturally the New Model retains the modern, completely automatic operating mechanism that has set PARK-O-METER out in front.

DIE CAST CASE? Yes

The new die cast case gives improved protection against dust and moisture and adds a smooth beauty and brilliance.

RED ARROW COIN SLOT? Yes

The coin-slot marker, cast into the case, colored a brilliant red, adds to simplicity of operation; increases public acceptance.

All these Features are Built into the New CONVERTIBLE PARK-O-METER MODEL G

Without increase of one penny in cost, these new features give PARK-O-METER every advantage suggested by municipal officials throughout the nation. Every feature is incorporated in the engineered precision mechanism so that interchangeability to meet every need is *instantaneous* without use of extra parts. The durable, trouble-proof mechanism is designed for minimum maintenance time and expense. Many damaged parts are instantly replaceable without taking meter out of service.

Ask About the NEW CONVERTIBLE PARK-O-METER

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Brighter Houston

By F. N. BALDWIN, *Director of Utilities*
Houston, Texas

HOUSTON is brightening its streets, boulevards, and main traffic arteries for the safety of its citizens. A long-range street-lighting program, which went into effect before the war, was interrupted by the lack of street-lighting equipment. In 1940, the plan was to install 3,500 new street lights, which would put a light on almost every street intersection. Since that time, 2,278 lights of 2,500 lumens have been installed in radial reflectors on overhead brackets. We have found by experience that the 2,500-lumen lamp on street intersections spaced approximately 250 feet apart will give sufficient light for police patrolling, pedestrians, and very light vehicular traffic, and is not too bright to be annoying in the bedrooms of near-by residences.

All the street lights within the city limits are incandescent lamps, with the exception of 19 fixtures that use the 10,000-lumen sodium-vapor lamps. Five of these units were installed several years ago at the approach of a bridge on a highway leading out of the city. This bridge was nicknamed "The Kiss of Death Bridge" because of the great number of night traffic fatalities. Since lighting the approach, there have been no fatal accidents at night.

Nine sodium-vapor lamps were installed on Main Street at the Sunken Garden. This street not only carries heavy city traffic, but also feeds one of the main highways leading out of the city. The large circular garden, which is located in the center of the street, makes it necessary for traffic to slow down and drive around it. There are five streets that feed into the circular drive around the garden. Markers, blinkers, signs, and other means of cautioning drivers were installed on each side of the Sunken Garden, but these were generally damaged, and drivers continued to "jump" the curb. Most of these accidents have been eliminated in the year's operation of the sodium lamps.

This procedure of applying sodium-vapor lamps, instead of the standard incandescents, is carried out at hazardous locations, such as sharp curves on a main artery, or approaches to ferry slips or to narrow bridges, where no definite control of traffic can be maintained. The yellow sodium-vapor lighting calls the driver's attention to the road hazard.

The present street-lighting program calls for relighting a number of streets, some of which are feeders into the expressway that is being constructed under the supervision of the State Highway Department. The table gives the statistics for all larger projects.

Street	*Height*	*Standard Arm*	*Lamp*	*Quantity*	*Street Length in Miles*	*Average Spacing in Feet*	*Luminaire Arrangement*
Harrisburg Boulevard	25′	6′	10,000	307	6.4	110	Staggered
Fannin Street	25′	6′	10,000	148	2.4	85	"
Holcombe Boulevard	25′	6′	10,000	73	1.25	88	"
Interurban Expressway ...	30′	15′	16,000	222	3.5	83	"
Expressway Feeders	25′	6′	10,000	208	3.3	83	"
Pease, Pierce, Jefferson and Calhoun Avenues..	19′9″	Upright	6,000	128	1.0	83	Opposite
Washington Avenue	25′	10′	10,000	213	4.3	107	One side
				1,299	22.15		

The Washington Avenue installation, completed 14 months ago, has an interesting record, in that only one fatal accident has taken place since the lights were installed. Prior to the new lighting installations there were five fatalities in less than a year's time.

The intensity of illumination that will be received from the various lighting systems is in accordance with the Illuminating Engineering Society's *Recommended Practice of Street and Highway Lighting*. All projects will be straight incandescent lighting, with the exception of the Interurban Expressway, which will be mercury-vapor. This type of lighting allows a lighting standard to illuminate more effectively the six-lane expressway with a given spacing than could be obtained with an incandescent lamp of comparable wattage. The pedestrian traffic will be very light along the expressway, and the heavy vehicular traffic will move along at a higher rate of speed than is allowed on city streets. Under these conditions, mercury-vapor lighting is more desirable and economical.

When all of the street-lighting projects have been completed, Houston will have a system of good street lighting that will help reduce the night-time accidents and fatality rate.

Mercury-vapor lighting at the Sunken Garden in Houston, Texas.

Modern Lighting Urged for Boston

MOST of our large American cities have outgrown their street-lighting patterns. This is to be expected, with the opening up of new streets and subdivisions and the constantly increasing use of automobiles for night driving. Many of these municipalities are now seeking ways and means of modernizing and developing their present equipment on the basis of a comprehensive long-range program.

A poorly lighted thoroughfare is an invitation to crime; it encourages juvenile delinquency; and it is a definite hazard to pedestrian traffic. It is a matter of record that the night fatality rate for the so-called normal year 1941 was actually double the daytime rate. In other words, out of a total of 617 fatal accidents in Massachusetts in 1941, 204, or 33%, occurred in the daytime, while 413, or 67%, occurred after dark, and this in the face of the fact that night-time traffic is much smaller in volume than daytime. While it may not be possible to duplicate daytime visibility at night, it nevertheless has been estimated that adequate lighting of streets and highways would reduce night fatalities by 50%. In Massachusetts, therefore, this would mean the saving of 200 lives annually. If to these figures we apply the National Safety Council's estimate of $43,000 economic loss for every traffic fatality, we arrive at a saving equivalent to $8,600,000 annually. This amount would be materially increased by the elimination of court costs and the subsequent maintenance and care of juvenile delinquents and adult offenders. A scientific study on the part of a municipality, therefore, to determine the streets and highways within its jurisdiction that are hazardous from the standpoint of traffic or of crime, and the adoption of a comprehensive program extending over an established period of time, designed to overcome present inadequacies, would appear to be not only desirable from the standpoint of saving human life, but an actual investment in individual and community safety.

Gas Lamps Should Be Replaced

The Commission wishes to stress the need for replacing the old-fashioned antiquated gas lamps to be found on many Boston streets. A planned system of street and highway lighting involves four major considerations:

1. A complete survey and classification of streets according to function and traffic density.

2. Determination of the level of illumination to be provided based on volume of vehicular and pedestrian traffic, speed, character of pavement surface and functional requirements.

3. Selection of luminaires according to the light distribution needed for the street.

4. Determination of the mounting heights of the luminaire above the road surface, and the proper linear spacing between luminaires.

From the evidence offered to the members of the Commission in special hearings, in individual contacts, and from their own knowledge, they have no hesitation in saying that Boston and other cities would benefit by an over-all survey of its street-lighting pattern and the adoption of a long-range program of improvement.

There are at present a limited number of state highways within the city limits. If highway programs now proposed are carried out in whole or in part, the number and extent will in all possibility be materially increased. The same is true of the Metropolitan District Commission also, in addition to the 911 miles of highways under the exclusive control of the municipality itself. A large majority of the public using the streets of the City of Boston for business, shopping, amusement, education, and other purposes comes from outside of the city limits. It is apparent, therefore, that an adequately lighted street system is a matter which vitally affects the well-being of more than the city itself, and should be approached on the basis of an over-all study. For that reason, and after serious consideration of all the factors involved, the Commission recommends that the State Planning Board be authorized to proceed forthwith with a joint comprehensive survey of the adequacy of present street lighting in the City of Boston, together with an over-all program for its improvement in accordance with modern standards of efficiency. The Commission further recommends an appropriation of $10,000 to engage the necessary professional services.

This is an extract from the *Final Report of the Special Commission Relative to the Immediate Relief of Traffic, Housing, Street Lighting, and Recreational Conditions of the City of Boston.* The material above, prepared by Elisabeth M. Herlihy, Chairman of the State Planning Board, Boston, Mass., was adopted by the Commission as a basis for its recommendations.

The single- and twin-arm post types.

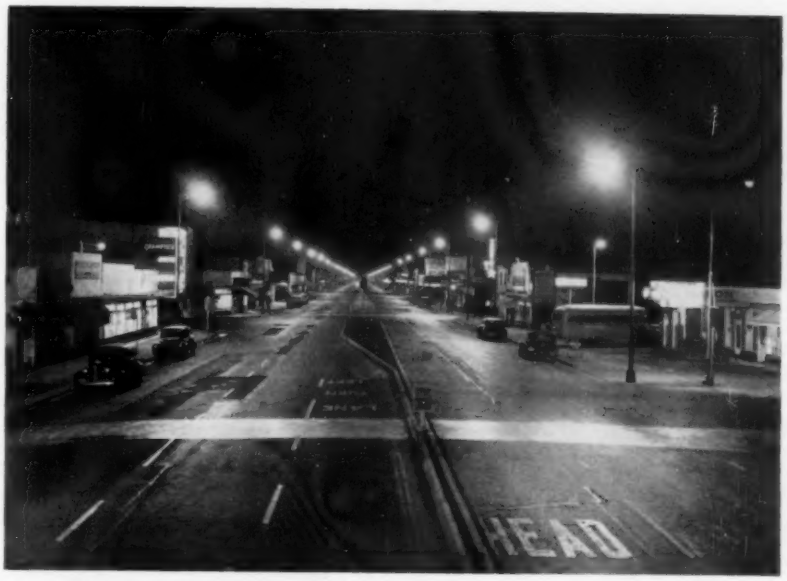
New York's Park Avenue Relights at 50 Years

MODERN standards, to the number of 216, will be raised to light Park Avenue, New York City, from 46th to 96th Streets, where 117 old posts now stand. Of the new ones, 115 will be twin-arm, so that there will be 330 10,000-lumen luminaires on this 50-block stretch against the present 122 luminaires. Wattage figures will be 195 kw compared with the present 72 kw; lumens, 3,300,000 against 1,222,000. This will increase the visibility approximately 170%.

Present lighting is at intersections only, and the units are 260 feet apart. Twin lamps are to be located diagonally at street intersections. Standards bearing single lights will be installed on the malls dividing this famous avenue.

The new units consist of a rolled-steel base with a tapered sheet-steel column welded to it and carrying a Westinghouse luminaire at 22 feet above street surface. The installation will burn for Park Avenue's Golden Anniversary, July 1, 1948. The total cost of installation is $120,000, or approximately $2,400 per block.

Latest in Mercury-Vapor Street Lamps



North Sacramento's new mercury-vapor installation, extending 5,620 feet through the business district, was turned on last October. Only two days of rain prevented an elaborate White Way Festival which included a parade and the crowning of a queen. Along this stretch of Del Paso Boulevard there had been thirteen 2,500-lumen incandescent lamps mounted at 22 feet. The new lights are 66 Westinghouse 400-watt 20,000-lumen lamps mounted 33 feet to light source on Union Metal standards, spaced 170 feet apart on each side of the 76-foot street, or one unit every 85 feet.

IN the pioneering days of mercury-vapor street lighting, there was little information concerning the operating characteristics of the early lamp and the auxiliaries required in its use. As the lamp was improved, so also was the luminaire. The development is described in a new brochure, *Westinghouse Mercury Vapor Street Lighting.*

Perhaps the most important contribution is the development of the larger-size quartz lamps with their higher efficiencies, their small light sources, and their freedom from restriction as to burning position. But equally important is the radically different design in luminaire.

Mercury-vapor lamps are twice as efficient as the incandescent lamp commonly used for street-lighting service. It delivers 40 to 60 lumens per watt, as compared with 16 to 21 lumens per watt for the incandescent lamp. It has a much longer lamp life, from 3,000 to 6,000 hours. More lumens per watt mean more light for the same power. A 10,000-lumen incandescent lamp consumes 2,136 kilowatt-hours per year as compared with 1,212 kilowatt-hours for a 10,000-lumen mercury-vapor lamp.

The characteristic color from the mercury-vapor lamp is bluish-white with a tinge of green, producing a spectacular white light. The radiation usually detracts from the brilliance of colors predominantly in the red end of the color spectrum, but it enhances the beauty and richness of colors predominantly in the blue end of the color spectrum. It is particularly pleasing to colors made up principally of greens and yellows. Trees and shrubs are beautified by the use of mercury-vapor lighting.

16,000-Lumen Lamps for Streets

For street lighting service, the best-known mercury-vapor lamps are the 400-watt, 16,000-lumen lamps for base-up burning and the lamps for base-down burning. They are now rated at 6,000 hours.

Another mercury-vapor lamp that has been proved to be satisfactory for street-lighting service is the 250-watt, 10,000-lumen lamp, which may be operated in any burning position. This lamp at present is rated at 3,000 hours. However, a much longer life has been experienced with continuous burning of this lamp in the Pennsylvania Turnpike installation, averaging about 5,000 hours.

The newest and most efficient mercury-vapor lamp proved for lighting service is rated at 400 watts, 20,000 lumens. It, too, may be operated in any position and has a rated life of 3,000 hours. Mercury-vapor lamps of other ratings are under development. Of particular interest is one of 1,000 watts, 60,000 lumens.

The mercury-vapor lamp is particularly suitable for business streets where it will be augmented by sign and window lighting. It may also be used in arterial highways, freeways, and residential areas.

The first sizable installation of mercury-vapor lighting for street lighting was made on Park Avenue in Denver, Colo., in 1936. It was a combination of mercury-vapor and incandescent lamps, the latter to provide some light in case of power failure, heat to insure starting in cold weather, and color correction. In actual operation, it was found that these precautions were not required.

Announcing the New JOSLYN

DIRECT SEAL

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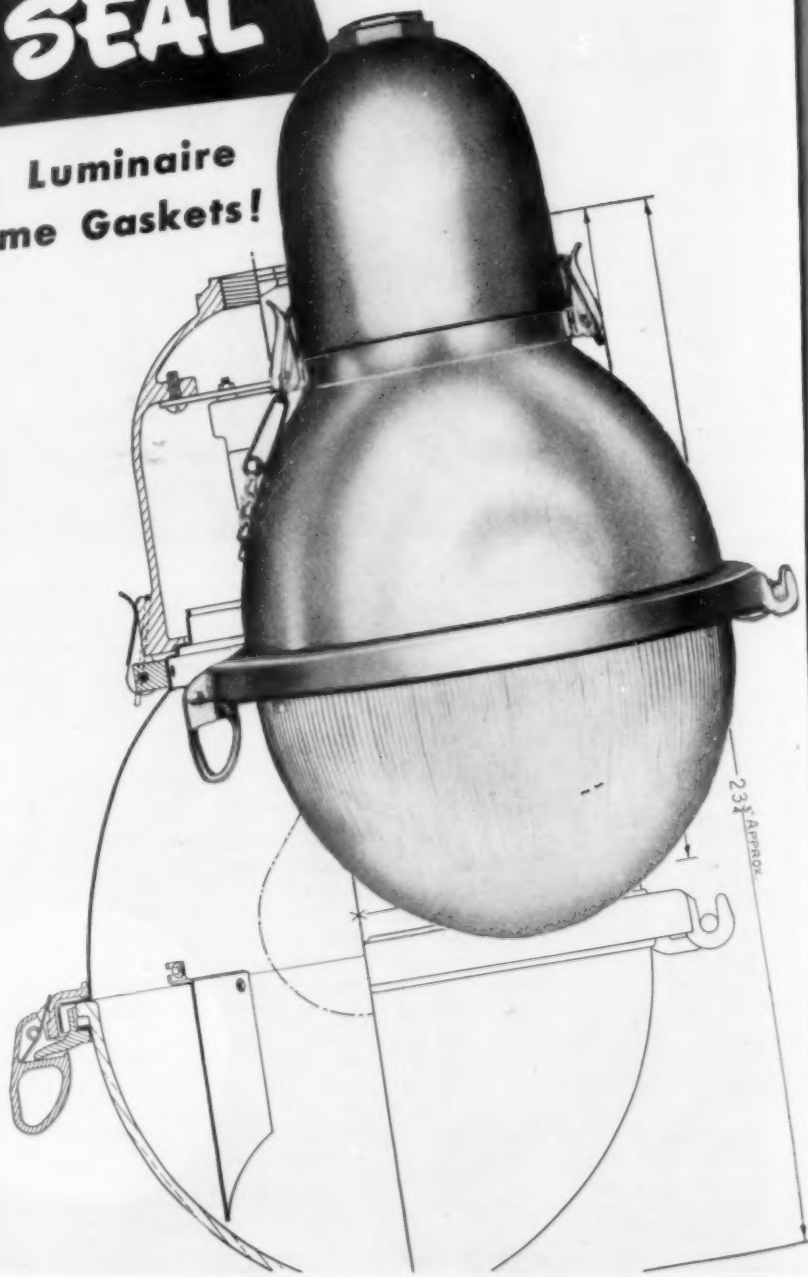

This new unique Joslyn Development provides a *direct-seal* between glassware and reflector without the use of gaskets which have proved to be troublesome and inadequate for street lighting applications. It results from our constant effort to provide Street Lighting Equipment of the highest efficiency and durability.

The following are some of the outstanding points of merit:

1. Circular wave type spring assures uniform high pressure direct-seal of glassware to reflector.
2. Latch and hinge attached to die cast aluminum ring which surrounds bottom flange of reflector thereby preventing distortion of reflector due to latching pressure.
3. The glassware holding ring of die cast aluminum and circular wave type spring are easily and quickly attached to the Holophane refractor or globe by applying pressure and rotating to the locking position.
4. The high pressure automatic latches draws the glassware ring upward, compresses the circular wave type spring and thus provides a tight direct-seal of uniform pressure between glassware and reflector.
5. This design permits easy relamping from the ground with a switch stick and lamp replacer.
6. This luminaire conforms to latest requirements as to interchangability with respect to reflector-glassware assembly, sockets and series receptacles.

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Municipal and Civic Publications

A Guide for Planning Community Schools

THE AMERICAN SCHOOL AND UNIVERSITY—*The American School Publishing Corporation, 470 Fourth Ave., New York 16, N. Y. Nineteenth Annual Edition.* 1947-48. 650 *pp.* $4.00.

The new volume of this yearbook, devoted to the design, construction, equipment, utilization, and maintenance of educational buildings and grounds, is of more than usual interest to municipal officials and planners.

Section I, "Planning the School Building Program," will be found of special value and importance to community leaders facing unprecedented demands for new school construction. An extensive article on the relation of school-plant planning to community planning introduces the volume. Some other articles in Section I include a guide for planning school plants, characteristics of a good school site, Cincinnati's program of acquiring school sites, state aid for school buildings, and the school board as a planning agent.

The other sections of the volume are "Technical Facilities for School and College Buildings," "Instructional and Service Facilities," "Equipment and Supplies," and "Working Data for School Planners." Contributors are all educational experts, planners, or architects in the school-building field.

An extensive manufacturers' catalog section and an 18-page bibliography of selected sources and references for school plant planners help make the volume of maximum usefulness.

Municipal Power Systems

RESULTS OF PUBLICLY OWNED ELECTRIC SYSTEMS—*Burns and McDonnell Engineering Company, Consulting Engineers, P. O. Box 7088, Kansas City, Mo.* 1947-1948. *Ninth Edition.* 384 *pp.* $10.00.

What the publicly owned and operated electric systems in the United States are doing is set forth in this volume, which contains information on rates, earnings, expenses, and other operating records. The book containing the results for all cities over 50,000 and many small ones down to 2,500 in population.

The 600 cities covered, out of a total of 3,460 communities having publicly owned electric systems, give a fair cross-section for statistical comparisons with steam, diesel, hydro, and purchased power. The volume contains the only published data pertaining exclusively to publicly owned utilities.

Interesting information is also included on the many federally owned power systems that are making cheap power available. The book is a most valuable reference source for city managers, mayors, superintendents and others interested in the utility business.

Adjusting Federal and State Programs to Local Needs

GRASS ROOTS, A REPORT AND AN EVALUATION—*Council on Intergovernmental Relations, Washington, D. C. September* 1947. 53 *pp.*

This pamphlet contains a report and evaluation on the five experimental intergovernmental relations programs conducted in Blue Earth County, Minn., Henry County, Ind., Colquitt County, Ga., Santa Clara County, Calif., and Skagit County, Wash. It describes how the idea for the program originated, how the Federal Council on Intergovernmental Relations was established, and how each of the local programs developed.

The objective of the entire undertaking is expressed in the conviction that democratic management in American government requires a large measure of citizen participation in adjusting federal and state programs to local needs and conditions, for it is at the grass roots that government-citizen contacts are most numerous.

New Income Tax Tables

WITHHOLDING INCOME TAX FROM WAGES—*Municipal Finance Officers Association, 1313 E. 60th St., Chicago 37, Ill. Special Bulletin 1948 B. April* 10, 1948. 16 *pp.* 50 *cents.*

This bulletin contains tables and information for state and local governments pertaining to the new income-tax withholding rates which became effective May 1. The tables are reproduced in large type and the bulletin has eliminated all information in the Bureau of Internal Revenue withholding tax circular that has no application to state and local governments.

Western Government Research Proceedings

PROCEEDINGS, WORKSHOP IN GOVERNMENTAL RESEACH—*Western Governmental Research Association, 117 Library, University of California, Berkeley, Calif.* 1948. *Mimeo.* 32 *pp.* $1.00.

These proceedings of the meeting held in October 1947 include reports on private research agencies and their aid to government, discussions of various administrative problems and procedures, and an exchange of views on what government and business can learn from each other in improving their operations.

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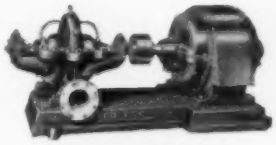

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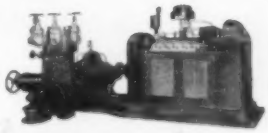

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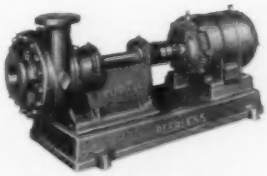

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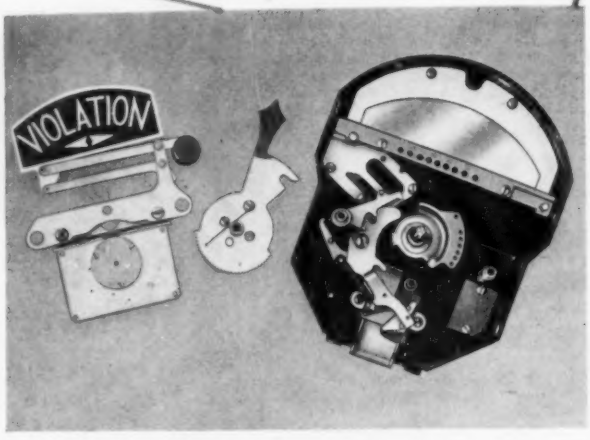

No one will deny that you'll have less trouble with a parking meter when you reduce the number of working parts. Long ago Michaels learned that a parking meter with a lot of intricate mechanism, no matter how well constructed, would not stand up under the abuse to which meters are subjected. Look at the small number of moving parts in a MI-CO (as low as five on some models) and then compare it with any other make of meter. Check carefully MI-CO's simplicity and rugged construction. You can't help but conclude that this meter will give you the kind of service you have a right to expect. *It will, too, because it's seldom out of order.* What's more, MI-CO's are priced right. Yes, you can buy the best meter—the MI-CO meter—at a low price. Write, wire or phone for all the facts.

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Water and Sewage Text

WATER SUPPLY AND SEWAGE, *Second Edition—By Ernest W. Steel, Consulting Engineer to the Instituto Nacional de Obras Sanitarias, Venezuela; formerly professor of Municipal and Sanitary Engineering, Agricultural and Mechanical College of Texas. McGraw-Hill Book Co., 330 W. 42nd St., New York 18, N. Y. 666 pp.* $6.00.

A text designed primarily for college and University study covering the subjects of water supply, sewage collection and disposal, but containing data sufficiently well documented to make it helpful for general use in this field. The text follows closely the outline of the previous edition published in 1938 and, as the author points out in his introduction, enlarges on the practice of chlorination by discussing the factor of a free residual with particular application to the "breakpoint process." It also outlines the threshold odor test of water and describes innovations in water softening and water correction. In sewerage discussions it gives more space to sewage pumping and sewer maintenance and discusses in more detail high-rate trickling filters. It also includes the 1942 U. S. Public Health Service Standards for drinking water.

Missing from the discussion of groundwater is any reference to the radial well-and-caisson installations that are figuring so prominently in many installations. Lacking in the chlorination discussion in practice is any reference to dechlorination that many sanitary engineers feel is important. In covering sewage-sludge digestion, the text overlooks the important factor of digestion-tank temperature control by use of heat exchangers that plays an important part in many of today's sewage-treatment designs and refers only briefly to the use of sludge gas as a source of power.

Preparing Good Pamphlets

PAMPHLETS THAT PULL—*By Alexander Crosby. National Publicity Council, 130 E. 22nd St., New York 10, N. Y.* 1948. *32 pp.* $1.00.

Whatever the purpose of your pamphlet—education, promotion or action—*Pamphlets That Pull* points out that you will catch and hold your reader only with an attractive format and human writing. It contains specific examples of brevity, humor, honesty, and concreteness, characteristics all needed for good interpretation.

In making recommendations for pamphlet writing and publication, *Pamphlets That Pull* practices what it preaches through its own attractive format and lively writing.

The pamphlet also contains some useful general rules about the maximum length of any material for popular distribution and a helpful lesson on how to avoid overwriting. Seven readable styles of type are illustrated and discussed. A section "Mostly About Money" gives information on current costs of printing, engraving, and art work, and lists six tested ways of cutting printing expenses without sacrificing quality.

Council-Manager Plan

THE STORY OF THE COUNCIL-MANAGER PLAN *and* FACTS ABOUT THE COUNCIL-MANAGER PLAN—*Two pamphlets published by the National Municipal League, 299 Broadway, New York 7, N. Y.* 1948. *The "Story" is 44 pages, 15 cents per copy. "Facts" is 8 pages, 5 cents per copy.*

These two pamphlets will be found of great value in helping to publicize and promote the growth of council-manager government. They point out that the council-manager plan is now being used in more than 800 municipalities and counties, and that at the present rate it will surpass the mayor-council form before 1960 and become the dominant pattern of local government.

"The Story of the Council-Manager Plan," a 1948 revision, cites case success stories of some cities where the council-manager plan has been used. It contains a listing of municipalities and their populations which operate under the accepted principles of the council-manager plan. "Facts" is a handy pocket-size summary which also lists some additional sources of information on council-manager government.

Enforcing Speed Laws

TRAFFIC SPEED ENFORCEMENT POLICIES—*By Wilbur S. Smith and Charles S. LeCraw, Jr. Eno Foundation for Highway Traffic Control, Inc., Saugatuck, Conn.* 1948. 90 pp.

Based on a questionnaire survey of policies in effect in enforcement agencies of cities and states throughout the country, the study presents some important facts regarding speed-enforcement practices. Properly interpreted and applied, these findings should be useful to public officials and others in the development of more effective, reasonable, and uniform practices which must be achieved if sane, progressive traffic regulation and control are to prevail.

The principal items studied were speed laws, tolerances in speed cases, vehicles and equipment used to apprehend speeders, and court procedures and fines. The book contains a number of graphs, charts, and photos of some of the up-to-date equipment in use to measure speed.

Chilean Development Corporation

THE CHILEAN DEVELOPMENT CORPORATION—*By Herman Finer. The International Labour Office, Washington Branch, 1825 Jefferson Place, Washington 6, D. C.* 1947. *84 pages.* 50 *cents.*

An engrossing study of how the Chilean Development Corporation, which has been operating for eight years, has worked to raise national living standards. The Corporation has powers much broader than those of the TVA in the United States, and has developed a comprehensive approach to promoting national economic development. The report points out that Chile can afford to spend only a modest amount annually on developing production, and that therefore the significance of the experiment lies in what is in the minds of the planners rather than in the actual achievements to date.

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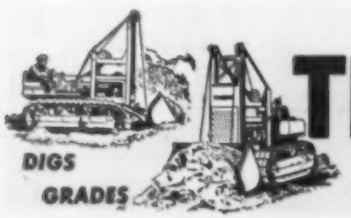

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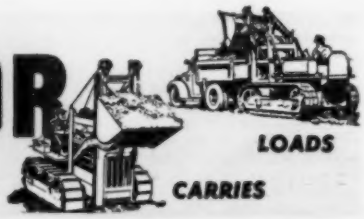

Data on State Activities

THE BOOK OF THE STATES, 1948-1949—*The Council of State Governments, 1313 E. 60th St., Chicago 37, Ill. 1948. 780 pp. Tables. $7.50. With 1949 Supplement, $10.00.*

The seventh edition of *The Book of the States* provides an authoritative source of information on state activities and reports on progress of the work done by the Council of State Governments, the commissions on interstate cooperation, and other agencies concerned with intergovernmental problems. Rosters of state officials and legislators are included. Future editions will be issued biennially in January of the even-numbered years, but two supplements will be made available in the interim periods, one listing legislators and elective officials and the other including appointed administrative officials.

Of special interest among the wealth of data contained in the volume is the emphasis on state planning and development activities. State legislation on housing and urban redevelopment is also summarized. The sections on state-local relations and units of government are some of the many other items in the volume of direct interest to local jurisdiction. The volume also contains an excellent bibliography on the problems and services of state government.

For Decentralized Living

FORCES AFFECTING METROPOLITAN PATTERNS—*Mabel L. Walker. January 1948 issue of* Tax Policy. *Tax Institute, 150 Nassau St., New York 7, N. Y. 16 pp. Single copies, 25 cents. Special prices on quantity orders.*

This issue of *Tax Policy* contains excerpts of recent addresses given by the executive director of the Tax Institute regarding the combined impact of forces for urban disintegration. Another article by Dr. Walker on the thesis and concept of the "fluid" city, a term which is coming into widespread usage, appeared on pages 119-120 of THE AMERICAN CITY for July 1947.

Planning and Construction of Marinas

MARINAS: RECOMMENDATIONS FOR DESIGN, CONSTRUCTION AND MAINTENANCE.—*By C. A. Chaney. Supplement—1947. The National Association of Engine and Boat Manufacturers, Inc., 420 Lexington Ave., New York 17, N. Y. 1947. Illus. 62 pp.*

This volume presents information concerning the latest developments in, and the tremendous expansion of, marina planning and construction. It is intended as a supplemental companion treatise to a volume published in 1939, yet it contains so much new material that it might well become, in itself, a substantial contribution to existing data.

The handbook should be of valuable assistance to many professional and technical people interested in the planning, construction, and maintenance of facilities for recreational craft. It contains sketches and photographs of various public marinas and municipal yacht basins. As well as engineering data, the booklet also includes information on utilities and accessories, and on management and financial aspects of marinas.

Planning Metropolitan Areas

THE FUTURE OF LARGE METROPOLITAN AREAS—*An Address by F. J. Osborn, as presented at the Eighteenth Annual Meeting, Regional Plan Association, December 16, 1947. Available from the Association at 205 E. 42nd Street, New York 17, N. Y. Mimeo. 12 pp. $1.00.*

A very excellent discussion by one of the world's foremost planners of the strategy required to direct city rebuilding in a comprehensive fashion. The publication contains introductory remarks by Paul Windels, president of the Regional Plan Association, and a reproduction of editorial comment which appeared in the *New York Herald Tribune* about Mr. Osborn's talk.

Negro Housing Needs

THE HOUSING OF NEGRO VETERANS—*Available from the Division of Information, Housing and Home Finance Agency, 1626 K St., N.W., Washington 6, D. C. February 1948. 22*

This report, prepared by the Racial Relations Service and the Housing Data Staff of the Housing and Home Finance Agency, analyzes sample surveys of veterans' housing needs in 24 Southern and 8 Northern areas. It shows that the housing problem is generally more acute for non-white families than for whites, and that proportionately more Negro than white veterans seek better living conditions.

The survey reveals that the average percentage of Negro veterans living doubled-up or in stopgap accommodations for all the Southern areas was 55% and for all the Northern, 45%. These compare in the South with 38% for all veterans and 33% for whites, and in the North with 42% of all veterans.

The housing plans of the Negro veterans, revealed in the surveys, show a realistic awareness of what they can afford to pay and constitute a challenge to the building industry to meet their needs.

War Relocation Center Study

COMMUNITY GOVERNMENT IN WAR RELOCATION CENTERS—*War Relocation Authority, United States Department of the Interior. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 103 pp. 35 cents.*

An interesting study of the evolution of federal policy with regard to the treatment of the Japanese removed from the West Coast during the war. There is enough detail given to make the story of community organizations and how they functioned in the government of the relocation centers a valuable case report for future use in the development of local community councils.

Assessed Values in New York City

REPORT OF THE TAX DEPARTMENT AND THE TAX COMMISSION OF THE CITY OF NEW YORK. *July 1, 1945, to June 30, 1946. 45 pp.*

This report contains assessed valuations for New York City for the fiscal year 1946-1947, and is the first complete annual report of the tax department that has been issued in the last five years. The report explains the functions of the Tax Commission and bureaus of the Tax Department. It comments on the trend of assessed valuations in the city, showing that in Manhattan, for example, the net decrease in valuation for 1946-47, a continuing trend, amounted to $8,653,450, while several of the other boroughs recorded gains.

Some idea of the importance of the Tax Commission's work can be realized from the total figure — $21,328,339,728 — representing the assessed value of all real estate for 1946-47.

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Land-Value Taxation

MUNICIPAL REAL ESTATE TAXATION AS AN INSTRUMENT FOR COMMUNITY PLANNING—*By Leon Silverman. Reprint from* The Yale Law Journal, *issue of December* 1947. *Available from the Robert Schalkenbach Foundation, 50 East 69th St., New York* 21, *N. Y.* 1948. 24 *pp.* 15 *cents.*

This thoughtful article suggests that land-value taxation be introduced into present municipal tax systems as one phase of an integrated community plan. The procedure which would least disturb present practice, the author declares, is the placing of a progressive tax on the assessed value of land and the untaxing of all improvements. Extending the principle of scientific assessments and the classification of land according to its use potential would make such a scheme comparatively simple to apply, he states, advocating the gradual adoption of the new tax, with minimal disruption of established procedures.

Conservation of the capital resources of American cities and their planned future growth depend in large part upon the intelligent restructuring of municipal tax policy, the author concludes. The article's references and citations will be found useful for those interested in further study of these important recommendations.

Cincinnati Study

COMMUNITIES, A STUDY OF COMMUNITY AND NEIGHBORHOOD DEVELOPMENT — *Published by City Planning Commission, Cincinnati, Ohio. December* 1947. 153 *pp. Illus.* $1.00.

The fifteenth in the series of Cincinnati Metropolitan Master Plan Reports, this study reflects the basic philosophy of the entire project, namely, that the organization of the activities of the Metropolitan Area be on the basis of communities and neighborhoods. While the study deals primarily with areas for living, it takes into account substantially all of the findings and recommendations of the Master Plan included in previous reports.

An average *community* in the Cincinnati area as visualized by the Master Plan will contain a population of 20,000 to 40,000 persons. It will be between 1,000 and 2,000 acres in area. A typical *neighborhood* will contain 400 to 800 acres, a population of 4,000 to 8,000, an elementary school with a children's playground, one or more small local parks, etc.

The report points out that the community plans included should only be a general foundation for and forerunner of more comprehensive and detailed studies of each individual community, which should precede and accompany the revision of the zoning ordinance.

In the meantime, the volume is expected to prove helpful to civic organizations and civic-minded individuals in their constructive thinking and action looking to the improvement of their respective communities and neighborhoods.

Democracy Through Recreation Centers

STRENGTHENING DEMOCRATIC GOVERNMENT THROUGH A RECREATIONAL COMMUNITY CENTER—*By Hugo W. Wolter, Community Counsellor. Available from the author at* 290 *Simcoe St., Toronto, Ont. July* 1947. 19 *pp.* 50 *cents.*

A discussion of the importance of planning the administrative set-up of community recreation centers to go along with the planning of physical facilities. The author points out the necessity for developing democratic techniques in recreation participation, financing, and management.

Municipal Government

AMERICAN MUNICIPAL GOVERNMENT AND ADMINISTRATION—*By Stuart A. MacCorkle. D. C. Heath and Co., Boston, Mass.* 1948. 638 *pp.* $4.25.

A textbook which treats in non-technical fashion the major purposes and functions of city government. Much of the material in the volume appeared in the author's book, *Municipal Administration, published in* 1942. It should be especially useful in introductory courses on political science and government.

Regulating Public Utilities

PUBLIC UTILITY REGULATION—*By Herman H. Trachsel. Richard D. Irwin, Inc., 3201 South Michigan Ave., Chicago* 16, *Ill.* 1947. 358 *pp.* $5.00.

Although this book is designed primarily for use as a college textbook, it should be helpful to legislators, city officials, regulatory agencies, utility executives, leagues of women voters, and ordinary citizens.

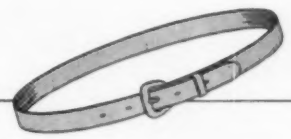
Following a discussion of the characteristics of a public utility and the purposes of regulation, the agencies for regulation in the city, state, and national governments are considered. Attention is then given to the problems of valuation, reproduction cost new, prudent investment, depreciation, rate of return, rate structures, accounting and reporting, and the holding company. The activities of the national government in promoting rural electrification, federal power projects, and the Tennessee Valley Authority are then discussed.

School Redistricting

TOWARD BETTER SCHOOLS THROUGH COOPERATION—*Prepared by Dauphin County Branch, Pennsylvania Economy League, Inc., 715 Blackstone Building, Harrisburg, Pa.* 1948. *Mimeo.* 46 *pp.*

This is a study of nine contiguous school districts in Dauphin County, Pa. Its methods and recommendations, however, are undoubtedly applicable to many other suburban and rural areas throughout the country.

The report shows that present school facilities within the country are inadequate. It proposes that the nine school districts combine their efforts and resources, either by merger or joint-board agreement, to provide a single, coordinated program of education embracing grades one through twelve. Three existing high-school centers would be made junior-high-school centers for all of the nine districts, and a senior high school would be erected as soon as practicable for all the nine districts.



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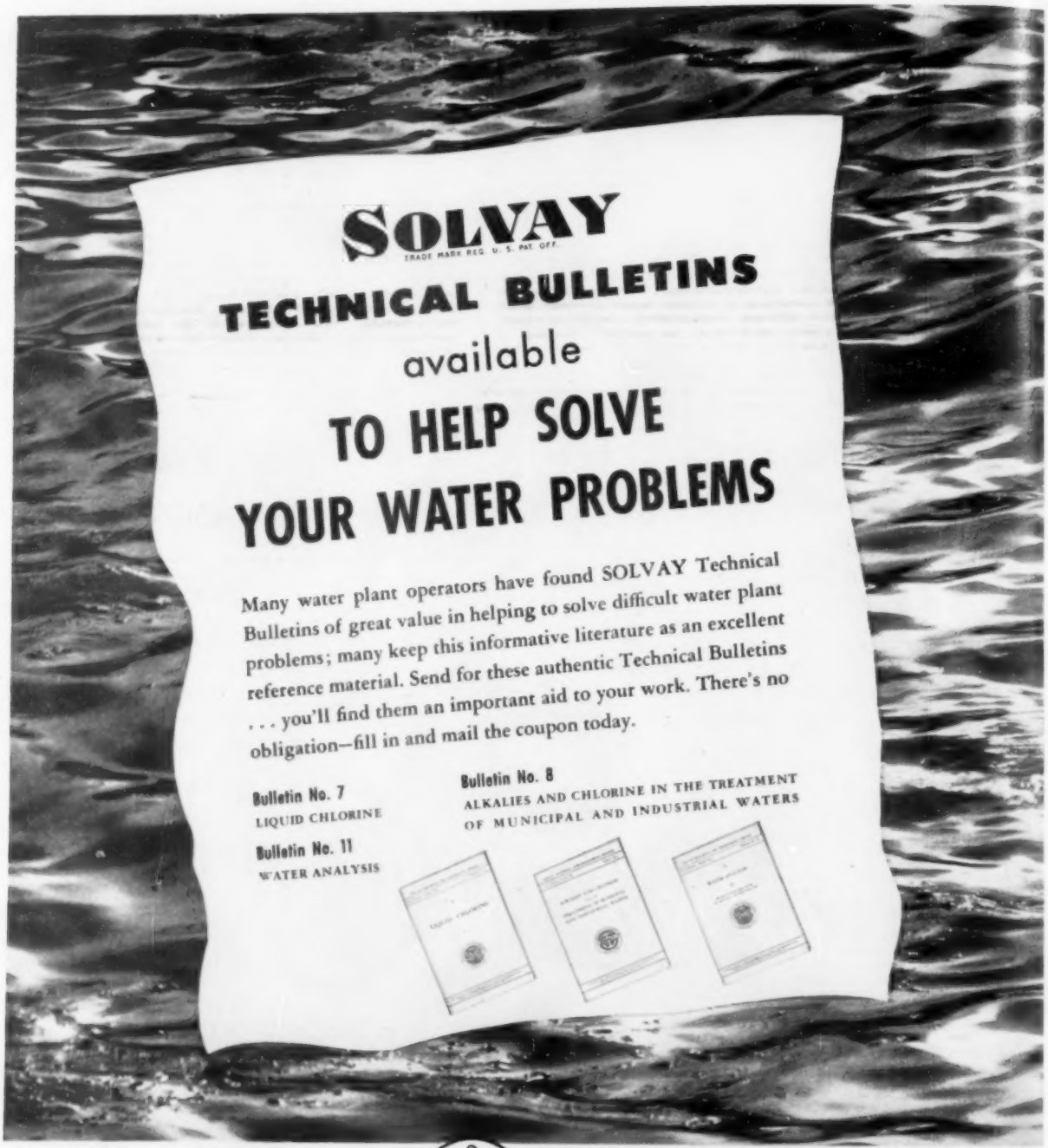
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Housing Programs and Principles

A Housing Program for Now and Later—*National Public Housing Conference, 1015 Fifteenth St., NW., Washington 5, D. C. February* 1948. 60 *pp.* 25 *cents.*

Prepared by a joint committee of the National Association of Housing Officials and the National Public Housing Conference, this comprehensive statement defines clearly the principles and programs under which housing in the United States should proceed. Committee members included Catherine Bauer, Chairman, and Ernest J. Bohn, Ervin W. Blum, John Edelman, Ray O. Edwards, Bryn J. Hovde, Philip M. Klutznick, Theo McCee, Boris Shishkin, Edward Weinfeld, and Coleman Woodbury.

The pamphlet points out the complicated nature of the housing problem, and argues against the use of both clichés and extensive technical terminology in presentation to the public of housing needs and facts. The statement goes all-out in support of the Taft-Ellender-Wagner Bill, S.866, as providing the essential framework, hitherto lacking, for a broad and effective nationwide housing policy. It asks especially for a continued federal public housing program, declaring that "local authorities have set the pace" in the design and efficiency of their housing operations.

All in all, the statement is an important contribution in helping to renew a sense of urgency about the need for adequately attacking the nation's pressing housing problems.

Cost Accounting for Institutions

Institutional Cost Accounting—*By Walter O. Harris. Public Administration Service,* 1313 *E. 60th St., Chicago* 37, *Ill.* 1948. *Reprint.* 153 *pp.* 40 *forms.* $3.00.

Reprinted from an edition dated 1944, the principles in this book are based on a system that has been in successful operation for several years at the Eloise Hospital and Infirmary in Wayne County, Detroit, Mich. The book provides in simple and direct language a description of a complete cost-accounting system that can be adapted and installed in any institution in which patients or inmates are housed—hospitals, infirmaries, asylums, prisons, and all other organizations with comparable problems of operation and maintenance.

Because of the size and complexity of the institution studied, virtually all of the problems that might arise in any type of institution are dealt with. Furthermore, the procedures are presented and explained in such a way that they can be applied and adapted with equal ease to large and small institutions. The book contains a wealth of illustrative forms, reports, and other material, the use of which is described in detail in the text. An unusually useful feature is the reproduction of an actual monthly report for a larger institution.

In-Lieu Tax Payments For Local Housing Projects

Payments in Lieu of Taxes on Federally-Aided Low-Rent Housing Developments Owned by Local Housing Authorities—*Municipal Finance Officers Association,* 1313 *E. 60th St., Chicago* 37, *Ill.* 1948. 25 *pp.* $1.

A factual discussion, amply buttressed by tables and statistics, which shows the serious effects on municipal finances caused by the 80th Congress when it made changes in the Appropriations Act relating to the administration of Public Laws 412 and 671, affecting payments for municipal services in lieu of taxes by local housing authorities.

The provisions in the Act restrict such payments in lieu of taxes to amounts provided in the original cooperation agreements between individual cities and their local public-housing authorities. This action has the effect of drastically reducing municipal reimbursement from the housing authorities for the cost of services rendered. The report recommends that payments in lieu of taxes should be permitted by local housing authorities on a basis of not less than 10% of shelter rents for the low-rent housing projects.

Los Angeles Government

From Rural to Urban, the Municipalized County of Los Angeles—*George W. Bemis and Nancy Basche. The Haynes Foundation,* 2324 *South Figueroa St., Los Angeles* 7, *Calif.* 1947. 34 *pp.*

This pamphlet is a simplified version of a more comprehensive study by the same authors, entitled "Los Angeles County as an Agency of Municipal Government," published in 1946. It has been condensed and adapted by Robert F. Wilcox for more widespread reading by the layman. Recommendations include drafting a new county charter, a more logical division of responsibility for provision of services between local and county governments, and promoting teamwork between the county government and its local units.

Large-Scale Personnel Management

How Big Is Our Job?—*By L. R. Boulware. Address delivered at the Personnel Conference, American Management Association, Chicago, February* 17, 1948. 19 *pp.*

The author, who is vice-president of the General Electric Company, discusses the ways in which employer-employee relationships can be improved both in his company and on a national level.

He enumerates nine desiderata essential to the happiness of the employees, and a booklet, "Supervisor's Guide," distributed within the company, elaborates on these elements. By dividing the 197,000 employees into groups of 5-25 each with a supervisor, an all-important man-to-man relationship is maintained which helps to correct misinformation in the minds of the individual employees, and also corrects physical and emotional properties of the job. In addition, general economic, social and policy information is diffused to the staff in the "Works News," and is subsequently discussed by the supervisors and individual employees.

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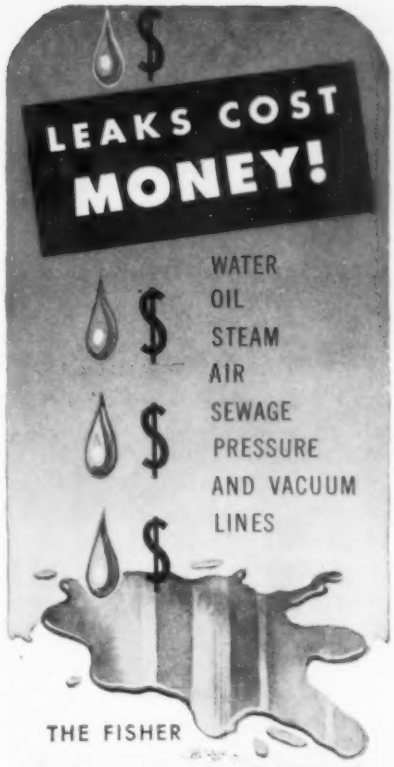

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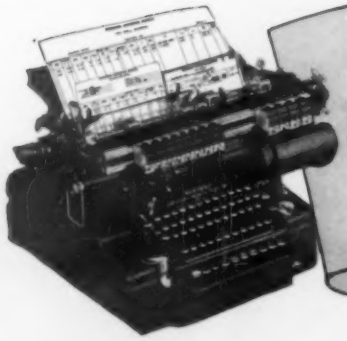

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Extending Municipal Boundaries by Annexation

EXTENDING CORPORATE LIMITS OF NORTH CAROLINA MUNICIPALITIES—*By S. Leigh Wilson, Field Consultant. North Carolina League of Municipalities, Raleigh, N. C. Report No. 60. January* 1948. 8 *pp.* 50 *cents.*

This report discusses the bill passed in the 1947 North Carolina General Assembly giving municipalities authority to extend corporate limits by local ordinance. The report contains details of procedure under the act, model ordinance, resolutions, and forms of notice.

The bill, which should be of general interest to municipal officials, provides that the governing body of a municipality may, without receipt of a petition, and upon proper notice, extend its corporate limits by ordinance, but that upon receipt of a petition of 15% of the qualified voters residing in the area proposed to be annexed, it *shall*, before passing the ordinance, submit the question to a vote.

The bill also provides for a referendum among residents in the municipality, but only upon proper petitioning. A majority of votes cast in both the municipality and the proposed territory to be annexed is then necessary to carry the question.

Performance Standards For Housing

PERFORMANCE STANDARDS—STRUCTURAL AND INSULATION REQUIREMENTS FOR HOUSES—*Housing and Home Finance Agency, Technical Offices, Washington* 25, *D. C. June* 1947. *Maps.* 12 *pp.*

Performance standards are proposed in this pamphlet for structural elements of the house such as floors, walls, partitions, ceilings, and roofs as well as for insulation requirements.

The pamphlet emphasizes the importance of developing standards for materials and structural systems rather than stating requirements in terms of types, grades, dimensions, spacings, mixes, or similar qualities often specified in building codes.

Since this is the first attempt to lay out performance standards for housing construction in this manner, it is expected that as the standards are applied, additional knowledge will be forthcoming which will lead eventually to a set of nationally accepted performance standards.

The publication is intended primarily for use by building officials, manufacturers, architects, engineers, testing laboratories, and others having a part in housing production.

Factual Report on Restrictive Covenants

PEOPLE VS. PROPERTY: RACE RESTRICTIVE COVENANTS IN HOUSING—*Herman H. Long and Charles S. Johnson. Fisk University Press, Nashville, Tenn.* 1947. 107 *pp.* $1.00.

A comprehensive review of the growth of race restrictive covenants and related practices, which contains a number of case citations and considerable statistical material. It should be of further aid in studying solutions and working out an approach to the problem. The report is based on a considerable body of field work and interviewing in various cities throughout the country.

Community Councils Promoted in Georgia

UNITED CITIZEN ACTION TO IMPROVE GEORGIA'S HUMAN RESOURCES—*Georgia Citizens Council, 20 Ivy St., S.E., Atlanta* 3, *Ga.* 1947. 26 *pp.* 25 *cents.*

Methods of establishing and maintaining local community councils are discussed in this pamphlet. Although based on actual experience of community leaders, the pamphlet points out that there can be no fixed pattern in setting up successful community-wide coordinating programs. It describes the need for improvement in Georgia and makes practical suggestions for local council programs and operation.

Indianapolis Debt Study

BONDED DEBT IN INDIANAPOLIS, AND A GUIDEBOOK FOR PLANNING—*Bureau of Governmental Research, Indianapolis Chamber of Commerce, Indianapolis. June* 1947. 29 *pp.*

A clearly presented study of Indianapolis municipal debt, the report illustrates how the city may take advantage of its favorable debt position to accomplish a substantial part of the more pressing municipal-improvement needs. The foreword of the publication points out that many outlays of the immediate future necessarily must be financed by general obligation bond issues, as the city's financial structure will not permit otherwise.

As well as providing the specific statistical detail on which city officials can base their decisions, the report serves as an example of how public officials can effectively make use of the services of a private, fact-finding agency.

Street and Highway Plan For Alexandria, La.

ALEXANDRIA, LOUISIANA, STREET AND HIGHWAY PLAN—*Prepared for the State of Louisiana Department of Highways and the Public Roads Administration Federal Works Agency by H. W. Lochner & Company.* 1947. 30 *pp.*

The report presents a concise picture of the existing conditions and the future requirements for streets and highways in Alexandria, Louisiana.

The booklet is factual and, at the same time, unusually attractive and interesting. It contains maps which clearly illustrate the author's findings and suggestions.

A survey of present and future parking needs also is included, and an ordinance requiring future builders to provide off-street parking is recommended.

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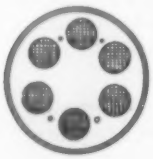

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Community Health

GOOD HEALTH IS GOOD BUSINESS — *National Planning Association, 800 21st St., NW., Washington 6, D. C. Planning Pamphlet No. 62. February* 1948. 44 *pp.* 25 *cents.*

This report, based on a longer and more technical study by an NPA subcommittee, is an excellent statement of the need for more adequate medical care in communities throughout the country. It stresses the importance of preventive measures, as in the detection and care of tuberculosis and in the improving of sanitation facilities. The concluding section contains questions for discussion about individual community medical care and its effectiveness.

Planning and Housing Reports

CINCINNATI, OHIO — Public Service Facilities. Published by City Planning Commission. 1947. Tables. Maps. 119 pp. $1.00.

DEDHAM, MASS.—Master Plan. Survey and Report. Prepared by Arthur A. Shurcliff and Sidney N. Shurcliff, Town Planners, Boston, Mass., for The Dedham Planning Board. 1947. Charts. Maps. Illus. 93 pp.

DETROIT, MICH.—Proposed Transportation Plan, Part I. Motor Freight Terminals, Port Facilities. A Master Plan Report, No. 6 of a Series. Issued by the City Plan Commission. 1948. Tables. Maps. 16 pp.

FRANCE—Renewing France. Published by the Information Division of the French Embassy, 610 Fifth Ave., New York, N. Y. Maps. Charts. Tables. 6 pp.

GREAT BRITAIN—Housing, Selected List of References to Housing and House Construction. Ministry of Works, Library, Lambeth Bridge House, London, S.E. 1. 1947. Mimeo. 37 pp.

HACKENSACK, N. J.—Annual Report of Progress, 1947. County Planning Board, County of Bergen, N. J. Map. Mimeo. 15 pp.

HOLLAND — Housing in the Netherlands and Relevant Acts and Regulations From 1900 Onward. Compiled by the Information Department of the Ministry of Reconstruction and Housing. The Hague, Holland. 1948. Tables. 24 pp.

LOS ANGELES, CALIF.—Personnel Relations Policy and Personnel Rules. Housing Authority of the City of Los Angeles, 401 East First St., Los Angeles, Calif. 1948. Mimeo. 33 pp.

MONTREAL, CANADA — Project for a Zoological Garden and Aquarium. Department of City Planning, City Hall. 1947. Illus. Maps, Charts. Appendix. 46 pp.

NEW YORK—New York State Builds Homes and Helps Others to Build. A Record of New York State's Objectives and Achievements in Housing. Division of Housing, State of New York, 270 Broadway, New York 7, N. Y. 1948. Illus. 76 pp.

PITTSBURGH, PA.—Master Plan of Airports, Allegheny County, 1956. Allegheny County Planning Commission. March 1947. Illus. Appendix. Mimeo. 44 pp.

RHODE ISLAND — Thirteenth Annual Report, 1947. Rhode Island State Planning Board. Table. 21 pp.

Other Reports Received

BIRMINGHAM, ENGLAND — The City of Birmingham Official Handbook, 1947. Compiled and edited by F. W. Bradnock. Published by the City of Birmingham Information Department, The Council House, Birmingham. Ill. 207 pp.

BLOOMINGTON, IND.—State Control of Business Through Certificates of Convenience and Necessity. By F. P. Hall, Bureau of Government Research, Department of Government, Indiana University. 154 pp.

DARIEN, CONN.—Annual Town Report, 1947. Charts. Tables. Illus. Mimeo. 57 pp.

LOS ANGELES, CALIF.—Report of Administrative Survey of the Civil Service Department, January 1948. City of Los Angeles Bureau of Budget and Efficiency. Charts. Tables. Mimeo. 159 pp.

LOUISVILLE, KY.—A Study of Sources of Municipal Revenue, January 1948. Louisville Area Development Association, 301 South Fifth St., Louisville 2. Tables. 48 pp.

LUNENBURG, MASS. — Annual Reports, 1947. Tables. 115 pp.

MILFORD, MASS.—Annual Report, 1947. Tables. Charts. 240 pp.

MILTON, MASS.—The One Hundred Eleventh Annual Report, 1947. Charts, Tables. 334 pp.

NORTHAMPTON COUNTY, PA.—Northampton Borough Municipal Authority, Part I. Proposed Bond Issue, April 8, 1948. Part II, Financial Study. By C. C. Collings & Co., Fidelity-Philadelphia Trust Building, Broad and Walnut Sts., Philadelphia, Pa. Tables. Mimeo. 41 pp.

NORTHBRIDGE, MASS. — Annual Report, 1947. Tables. 179 pp.

PITTSBURGH, PA.—Report on the Proposed Collection and Treatment of Municipal Sewage and Industrial Wastes. Allegheny County Sanitary Authority, 502 City-County Building, Pittsburgh. Mimeo. 28 pp.

PORTLAND, ORE.—Budget Facts and Financial Statistics of Multnomah County (Portland), 1947-1948. Tax Supervising and Conservation Commission of Multnomah County. Tables. 80 pp.

ROANOKE, VA.—City Auditor's Financial Report, 1947. Tables. 68 pp.

SAN FRANCISCO, CALIF.—Annual Report of the Controller, 1947. City and County of San Francisco. Tables. Graphs. 199 pp.

SPRINGFIELD, MASS.—Activities Report, 1947. By Future Springfield, Inc., Springfield. Illus. Mimeo. 15 pp.

WYANDOTTE, MICH.—54th Annual Report of the Department of Municipal Service, 1947. Illus. Charts. 30 pp.

YOUNGSTOWN, OHIO—Annual Report, 1947. By the Board of Sinking Fund Trustees. City Hall, Youngstown. Charts. Tables. Mimeo. 18 pp.

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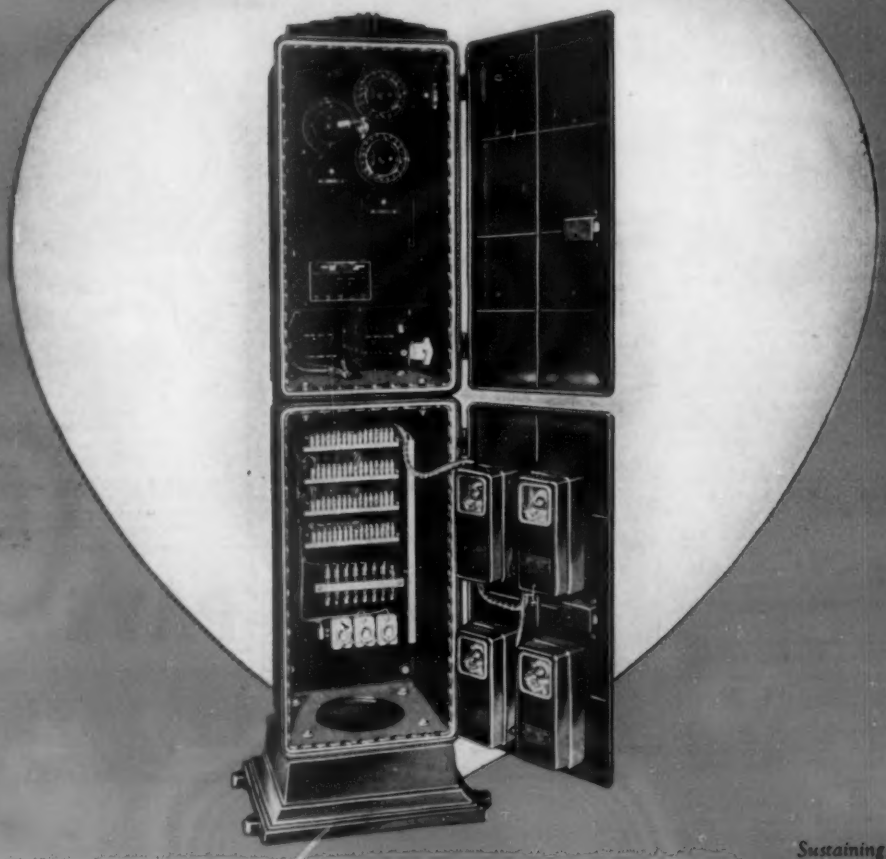

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Conventions

(*Continued from Page* 121)

***Oct. 4-7—Ottawa, Canada**
CIVIL SERVICE ASSEMBLY. Annual Conference on Public Personnel Administration (Chateau Laurier Hotel, Lord Elgin Hotel). Dir., James M. Mitchell, 1313 E. 60th St., Chicago, Ill.

***Oct. 10-13—Galveston, Texas**
AMERICAN WATER WORKS ASSOCIATION—Southwest Section. Sec.-Treas., L. A. Jackson, Mgr. Little Rock Water Works, Little Rock, Ark.

Oct. 10-14—New York, N. Y.
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Conference (Hotel Pennsylvania). Exec. Sec., Edward J. Kelly, 918 F St., NW., Washington, D. C.

***Oct. 11-13—Springfield, Ill.**
ILLINOIS MUNICIPAL LEAGUE. Annual Convention (Leland Hotel). Exec. Dir., A. L. Sargent, Illinois Municipal League, 537 South Fourth St., Springfield, Ill.

Oct. 11-13—New York, N. Y.
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Meeting (Hotel New Yorker). Exec. Dir., Walter H. Blucher, 1313 E. 60th St., Chicago 37, Ill.

***Oct. 13-15—Montgomery, Ala.**
AMERICAN WATER WORKS ASSOCIATION—Alabama-Mississippi Section. Annual Meeting (Whitley Hotel). Sec., John L. Snow, First National Bank Bldg., Montgomery, Ala.

***Oct. 13-16—Seattle, Wash.**
NATIONAL ASSOCIATION OF HOUSING OFFICIALS. Annual Meeting (Olympic Hotel). N.A.H.O., 1313 E. 60th St., Chicago 37, Ill.

***Oct. 17-20—Boston, Mass.**
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Conference (Copley Plaza Hotel). Exec. Dir., Donald F. Herrick, 1313 E. 60th St., Chicago 37, Ill.

Oct. 18-21—Detroit, Mich.
FEDERATION OF SEWAGE WORKS ASSOCIATIONS (Hotel Statler). Sec.-Treas., W. H. Wisely, 325 Illinois Bldg., Champaign, Ill.

Oct. 18-20—Philadelphia, Pa
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Conference (Hotel Bellevue-Stratford). Exec. Dir., Albert H. Hall, 730 Jackson Place, NW., Washington 6, D. C.

National Committee on Housing Inactivated

THE National Committee on Housing has advised its members that it will assume an inactive status after May 1, 1948. Studies and reports published by the Committee will be distributed in the future by the National Planning Association, 800 Twenty-first Street, NW., Washington, D. C.

In a letter to the membership it was explained that, although the need for the Committee's unique non-partisan activities in the housing and community-development fields is greater than ever because of the persisting emergency, it had proved increasingly difficult to finance an adequate program. The letter stated, however, that the soundness and validity of the Committee's non-partisan approach to problems of housing and planning had been more than justified by the substantial accomplishments of the seven years that it was in operation.

Magazine Changes Title to 'Land Economics'

BEGINNING with its February 1948 issue, the *Journal of Land and Public Utility Economics* is being published under its new title, *Land Economics*. Editorial policy remains the same. However, the editorial board, aware of the vitality of planning and housing as fields of scientific interest, has incorporated a subtitle: *A Quarterly Journal of Planning, Housing and Public Utilities*.

Land Economics, with its new, less unwieldy title, will soon near a quarter-century span of publication. The scholarly magazine is published by the University of Wisconsin as a part of its effort to encourage the growth and development of scientific research and scholarship.

The editorial board includes Raymond J. Penn, V. Webster Johnson, Martin G. Glaeser, H. J. O'Leary, E. W. Morehouse, Richard U. Ratcliff, Helen C. Monchow, John M. Gaus, Homer Hoyt, and Coleman Woodbury. Mary E. Amend is managing editor. Offices of the magazine are at Sterling Hall, University of Wisconsin, Madison 6, Wis.

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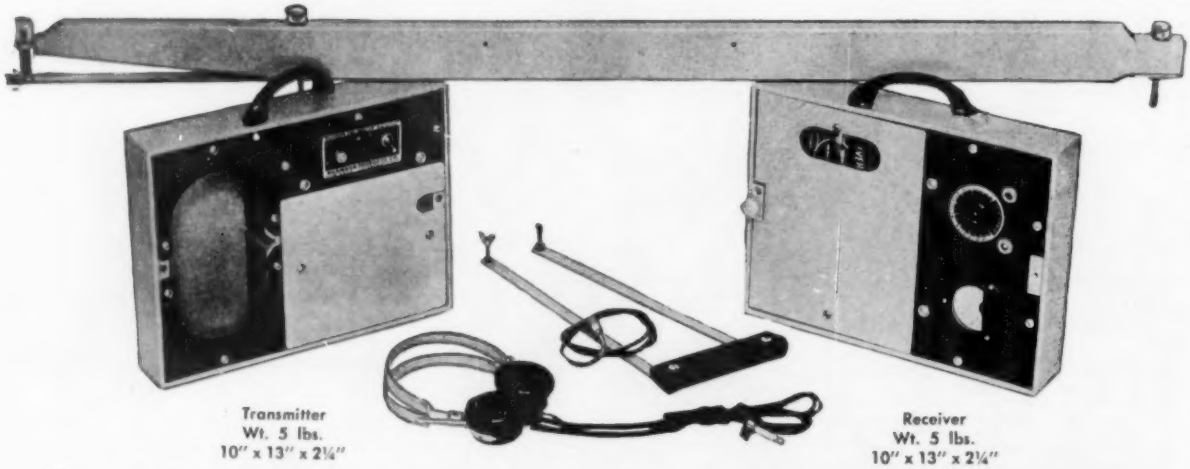

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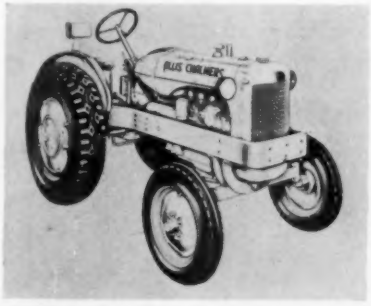
News and Illustrations

Items of interest to city, town and county officials and others concerned with the economical construction and efficient operation of public improvement undertakings.

New Fire-Fighting Unit for Columbia, Pa.

A new "First-Due" unit has been added to the fire-fighting forces of Columbia, Pa. The unit features a Hardie high-pressure pump, 60 gpm at 800 pounds; two 250-foot high-pressure hose reels, each equipped with a trigger-controlled fog gun, a 400-gallon water tank built in an L-U shape, forming two body-length seats for eight men with a walkway through the center of the body. The unit was built by the Oren Roanoke Corp., P. O. Box 264, 1201-09 West Salem Ave., Roanoke, Va.

Improved Wheel Tractor From Allis-Chalmers



Production has begun on the 1948 model IB wheel tractor, which embodies many improvements of a similar model produced by Allis-Chalmers before the war. The 16.3-hp unit can be equipped to work for street departments, for plowing snow, sweeping leaves, mowing weeds; it can be used for loading and for hauling warehouse supplies, moving heavily loaded dollies, and switching railroad cars.

The 2,365-pound unit has a medium speed, water-cooled, 4-cycle gasoline engine which uses less than 1 gallon of fuel per hour on average work. The tractor has a wheelbase of 57.7/16 inches, a length of 97½ inches and ground clearance under the front axle of 8¾ inches.

Bedell Heads Sirrine Co.

A. S. Bedell has been elected chairman of the Executive Committee of J. E. Sirrine Co., Greenville, S. C., and Henry L. Hagerman was named vice-chairman of the engineering firm. Other members of the committee are G. Wrigley, A. D. Asbury, and R. R. Adams.

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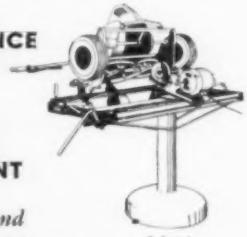

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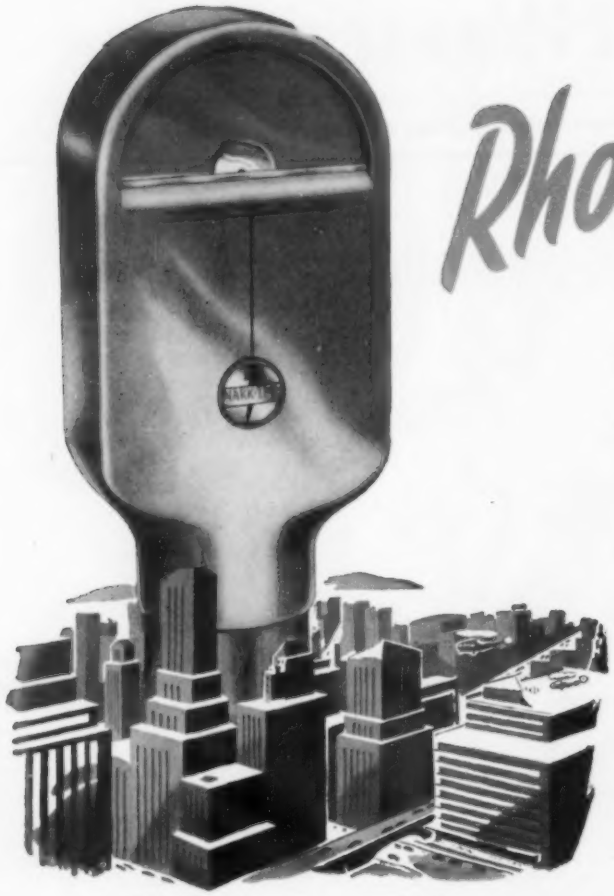

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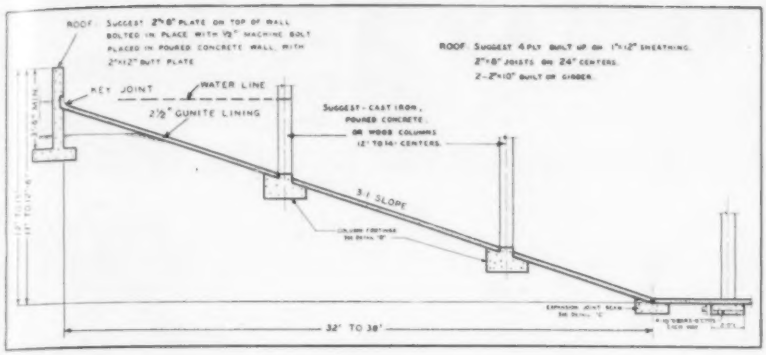
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2½" GUNITE LINING
SUGGEST - CAST IRON, POURED CONCRETE OR WOOD COLUMNS 12' TO 16' CENTERS
ROOF. SUGGEST 4 PLY BUILT UP ON 1"x12" SHEATHING. 2"x8" JOISTS ON 24" CENTERS. 2-2"x10" BUILT UP GIRDER
3:1 SLOPE
32' TO 38'

A typical working drawing showing the method used to build a reservoir by Guniting.

Workmen place a Gunited lining for a new water reservoir.

A construction practice in the water-reservoir field that boomed during the war and is finding favor in peacetime work involves the use of Guniting directly against the earth or against reservoir walls.

The Gunite Concrete and Construction Co., 1301 Woodswether Road, Kansas City 6, Mo., reports that during the war its crews completed a large volume of Gunite linings to reservoirs. Many of these applied the shot-in-place mortar directly against the earth in a manner shown in the accompanying drawing. The work varied all the way from a small reservoir to a large one built for the Lone Star Ordnance Plant at Texarkana, Arkansas, where the bottom was 420 x 420 feet with 2:1 slopes and a depth of 20 feet. The Gunite course in all cases averaged 2½ inches thick.

In addition the company has lined a number of old masonry reservoirs. The procedure is to clean the old surfaces thoroughly by sandblasting and to attach a good reinforcing mesh to the masonry by special anchors, then shoot a mixture of one part cement and three parts sand around and over the reinforcing to the thickness specified.

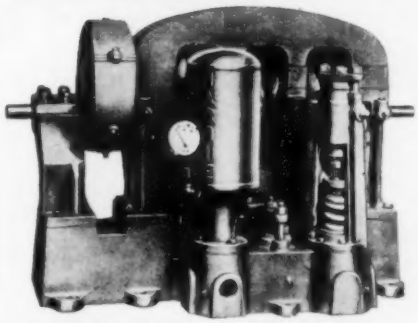
Brooks Appoints Great Lakes Representative

David S. Price, management and consultant engineer, has been appointed to represent the Brooks Equipment and Mfg. Co., 1950 Davenport Rd., Knoxville, Tenn., in the Great Lakes area.

David S. Price

Principal items manufactured by Brooks include Brooks Load Luggers, Brooks conveyors, and Day Pulverizer - Crushers.

Mr. Price will be located at 843 Agatite Ave., Chicago, Ill.



● *The dependable Hardie pump is the heart of this magnificent Fog Fire Fighter built for the Catawissa, Pa. Fire Department by Howe Fire Apparatus Company.*

● *The Hardie Imperial LCXA Pump delivers 60 gallons per minute at 800 P.S.I. at 130 R.P.M.*

● *The Hardie Imperial XCXX Pump delivers 35 gallons per minute at 800 P.S.I. at 118 R.P.M.*

The Hall-Mark Of A Dependable Fog Fire Truck

If there is a Hardie High Pressure pump in your Fog Fire Fighter you can rest easy. That pump will not fail you. 800 PSI, and the gallonage you want will be delivered at the fog nozzle steadily, continuously and without faltering no matter how long the hose line.

The Hardie Fog Gun with single trigger control, saves labor, time and trouble delivering the stream or fog you want by mere pressure of the fingers. Specify Hardie pumps and gun. Write for complete data.

THE HARDIE MFG. COMPANY

Los Angeles 11, Calif. • Hudson, Mich • Portland 9, Oregon

Export Dept.—Detroit 26

Canadian Office—Clarence W. Lewis & Son Ltd.—Grimsby, Ont.

HARDIE

High Pressure **PUMPS AND FOG GUNS for Fog Fire Fighters**

HYDROPEL®

Integral Waterproofing Admix for Concrete

Results of 6-sack concrete specimens after cyclic immersion and drying in saturated sodium sulphate. Plain concrete (left) after 5 cycles. HYDROPEL concrete (right) after 20 cycles.

Destructive internal stresses in concrete caused by volume changes due to moisture absorption are *effectively* resisted, for the *first time,* by the use of HYDROPEL.

More than ten years of research and field testing have proven that this chemical, aqueous suspension of colloidal asphalt is an outstanding contribution to the improvement of Portland cement concrete and mortars.

MERITS of HYDROPEL CONCRETE

1. **Reduces** moisture absorption from capillarity by 75% to 80%. Effectively reduces destructive percolation of water under pressure.
2. **Resists** chemical action. Repels action of alkaline or neutral salts and chemical gases.
3. **Eliminates** internal stresses caused by volume changes due to wetting and drying, freezing and thawing.
4. **Cushions** shock and vibration—adds toughness.
5. **Increases** concrete strength of lean mixes. Toughness offsets slightly less strength of richer mixes.
6. **Adds** warmth and resilience. "Comfort Concrete" for humans and livestock.
7. **Saves** cost by protecting and prolonging life of concrete under severe conditions. HYDROPEL is inexpensive to use and to buy.

USES for HYDROPEL CONCRETE

1. Tidal zone, shoreline projects, dams and bridges. HYDROPEL resists moisture, salt action and impact.
2. Highway slabs. HYDROPEL avoids stresses and warping, maintains tight joints, resists freeze-thaw actions.
3. Chemical and processing plants. Resists salt solutions - gases.
4. Refrigerated enclosures. Less moisture—efficiency increased.
5. Sewage disposal plants and municipal water systems. Triple life in raw sewage lines.
6. Industrial floor slabs. Warmth and resilience lessens fatigue in humans and animals.
7. Concrete building blocks, masonry mortar and building sidings. Strength and water-tightness improved.

OTHER PRODUCTS

The American Bitumuls Company is the largest manufacturer of Asphaltic Emulsions in the world.

Bitumuls & *Laykold*

ASPHALTIC EMULSIONS

Made in all standard grades for roads, airports, etc.

Processed for a wide variety of industrial uses, also tennis courts, playgrounds, etc.

SEND for THESE HELPFUL BOOKLETS

Clip out this cut of booklets—check the ones you wish. Mail with your name and letterhead to address of our plant nearest you.

AMERICAN BITUMULS COMPANY

BALTIMORE 3, MD. · E. PROVIDENCE 14, R. I. · PERTH AMBOY, N. J. · COLUMBUS 15, OHIO · 200 BUSH STREET • SAN FRANCISCO 4, CALIF. · WASHINGTON 6, D. C. · BATON ROUGE 2, LA. · ST. LOUIS 17, MO. · OAKLAND 1, CALIF. · LOS ANGELES (Inglewood), CALIF. · TUCSON, ARIZ. · SAN JUAN 23, P. R.

CANADIAN BITUMULS COMPANY, LIMITED • Leaside, Ont. — Montreal E., Que. — Vancouver, B. C.

What to Look for In Well Pumps

In some pumps the chief feature is that of keeping oil out of the water being discharged, since oil is generally recognized for its superior lubricating qualities. In other pumps an important feature is that of keeping the sand out

of the bearings if the well draws from a sand stratum. Still others emphasize impeller design and construction as the true heart of the pump performance.

Wintroath Pumps, Inc., Alhambra, Calif., makes it a point to emphasize that all three features are standard in their vertical turbine pumps. Their pumps, they point out, include features that positively exclude oil and sand from the trouble-making category. And the impeller design has exclusive features that insure efficiency in operation.

Wintroath engineers have developed the completely enclosed line-shaft-assembly design. By housing the line-shaft assembly within a shaft-enclosed tube, oil is kept in, and sand and other water-borne abrasives are kept out.

In the Wintroath, line-shaft bearings are fully lubricated by a built-in solenoid-operated lubricator which feeds uniform-temperature oil to the line-shaft assembly when the pump is operating. When the pump is stopped, a thin film of oil adheres to every line shaft and bearing surface to retard corrosion and provide instant lubrication when the pump is started again.

Similar attention went into the impeller design and construction. Wintroath impellers feature not only hydraulic efficiency, but also are unaffected by normal wear in the shaft and bearings. The enclosed end-seal impellers are balanced both dynamically and hydraulically to eliminate destructive vibration and off-center impeller bearing wear does not affect running shaft operation. Normal shaft and clearance does not affect running clearance because wear takes place in the plant at right angles to the impeller shaft.

Running clearances may be adjusted in a matter of minutes with the use of only standard hand tools. A slight turn on the easily accessible adjusting locknut at the top of the head shaft adjusts the End Seal impellers so that they may be lowered to restore close-running clearance for sustained performance or raised to develop a well without destroying the effectiveness of the seal.

On request, the company will send a full set of catalogs describing the Wintroath Enclosed End Seal Impeller.

Black Laboratories Open New Quarters

Black Laboratories, Inc., Gainesville, Fla., is housed in a new building.

Headed by Charles A. Black as president and William B. Crow as secretary-treasurer, the company is equipped to handle research, bacteriological, and water-analysis projects.

LEAVES ALWAYS FALL...

The EGAN LEAF COLLECTOR always picks them up *Quickly and Neatly*

Columbus, Ohio, received its first Egan Leaf Collector last fall. Write us today for a report on this city's satisfied experience.

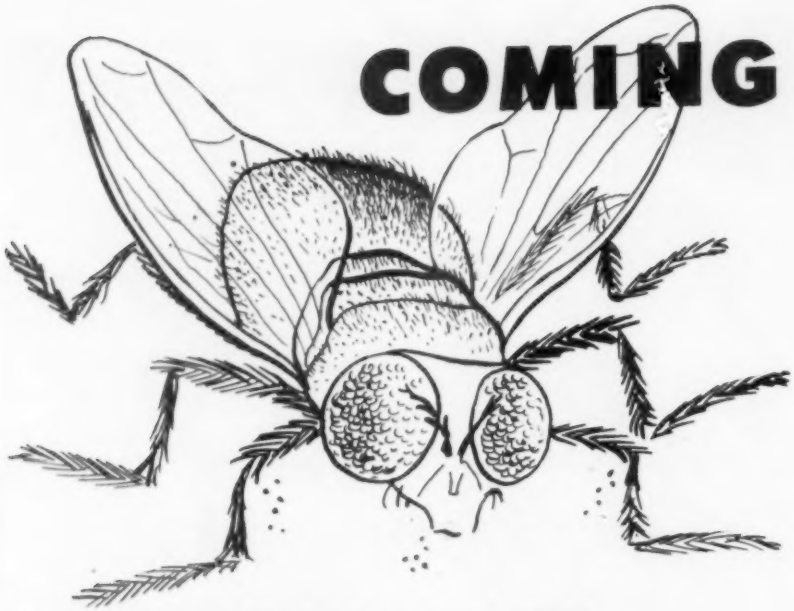
Fallen leaves are a nuisance and a hazard . . . The Egan Leaf Collector can be temporarily installed on any truck and easily removed . . . It shreds and compresses leaves into a small space . . . The Egan Unit easily handles both wet and dry leaves at one-tenth the cost of hand labor. If you investigate the Egan Leaf Collector, you will quickly note its superior features . . . Now is the time to get your appropriation granted for an Egan Leaf Collector. Write us TODAY for complete data.

DEEPHOUSE EQUIPMENT CO., Inc.

Leaf Collector Division

162 FARMINGTON AVE.
BERLIN, CONNECTICUT

COMING SOON..



. . TO RESTAURANTS, HOTELS GROCERY STORES, ETC., IN YOUR TOWN . . .

Before long the flies will be coming to restaurants, hotels, grocery stores and every place in your town to open refuse where they can feed and breed. They'll stay and multiply . . . spreading contamination and disease.

To meet this threat, many sanitation minded cities have installed the Dempster-Dumpster System of detachable truck bodies handled by a single truck. Bodies are placed throughout the business district, factory areas, schools, housing areas . . . in fact, wherever bulk trash or refuse accumulates. Once rubbish is placed in the body and the door is closed, no flies or rats can contaminate it . . . no wind or domestic animal can scatter it . . . fire hazard is completely eliminated. As the bodies are filled, a truck hoisting unit makes scheduled collection rounds, picks up each loaded body in turn, hauls it . . . dumps it and returns the empty to its original position. It's as quick and simple as that . . . only one man, the driver, handles the entire collection operation with the hydraulic hoisting unit.

In addition, the Dempster-Dumpster System guarantees tremendous savings in operational expenses. Remember that one truck hoisting unit with several bodies does the work of 4 or 5 conventional trucks.

Shown at right, top: Hoisting unit with 8 cu. yd. apartment-type body, preparatory to pick-up operation. Center: Body in carrying position. Bottom: Body in dumping position. Note how drop-bottom forms chute to guide trash.

DEMPSTER DUMPSTER

TRADE MARK REG.

DEMPSTER BROTHERS, Inc., 858 Dempster Bldg., Knoxville 17, Tennessee

Gar Wood Extends West Coast Operations

Gar Wood Industries, Inc., Wayne, Mich., is locating in larger quarters at the Parr-Richmond Terminal Co. property in Richmond, Calif., as one of the measures in extending its West Coast operations. This plant will be used to handle the manufacture of bodies now made in the San Francisco branch and will be the West Coast center for the assembly and distribution of hoists, bodies, winches, loadpackers, dozers, scrapers, and other truck and tractor equipment.

Huntress Appointed Manager

S. E. McCrum, advertising manager, has announced that R. G. Huntress has been appointed manager of wire rope sales for The California Wire Cloth Corp., a subsidiary of The Colorado Fuel and Iron Corp., Wickwire Spencer Steel Division, 500 Fifth Ave., New York 10, N. Y.

Mr. Huntress joined Wickwire Spencer in 1937 and has held the positions of assistant to the superintendent of the wire rope mill at Palmer, Mass., and later wire rope sales engineer.

His office will be located in Oakland, Calif.

Gregory M. Dexter Forms Own Firm

Gregory M. Dexter, consulting engineer and graduate civil and mechanical engineer, has opened an office in the Empire State Bldg., New York 1, N. Y. Mr. Dexter, whose previous experience includes work on filtration, water supply, waste-disposal, and diesel-engine power plants, will undertake engineering and financial reports, valuations, cost-reduction studies, municipal and industrial engineering, plant layout, and design.

Monaghan Promoted By Universal Concrete

The Universal Concrete Pipe Co., Columbus, Ohio, has appointed Thomas H. Monaghan assistant to the president and sales manager. Mr. Monaghan started with Universal in the Pittsburgh office, where he became sales manager before he was transferred to headquarters in Columbus.

T. H. Monaghan

Before coming to Universal, Mr. Monaghan was sales representative for the Ohio Bell Telephone Co.

Universal manufactures concrete pipe and block, and drain tile.

This Mower does what it claims!

6 MODELS

#3 Model shown—6 hp., 4-cycle Briggs & Stratton motors. Cuts 8 to 9 acres per day.

Standard also has these attachments: leaf pulverizer, cultivator, roller, riding sulky, snow plow.

Standard's 15 years of experience have proven that the rotary disc type of cutting is the most economical way of lawn control. No wheels are on the uncut grass. Cuts any growth.

Write for Circulars to Dept. AC

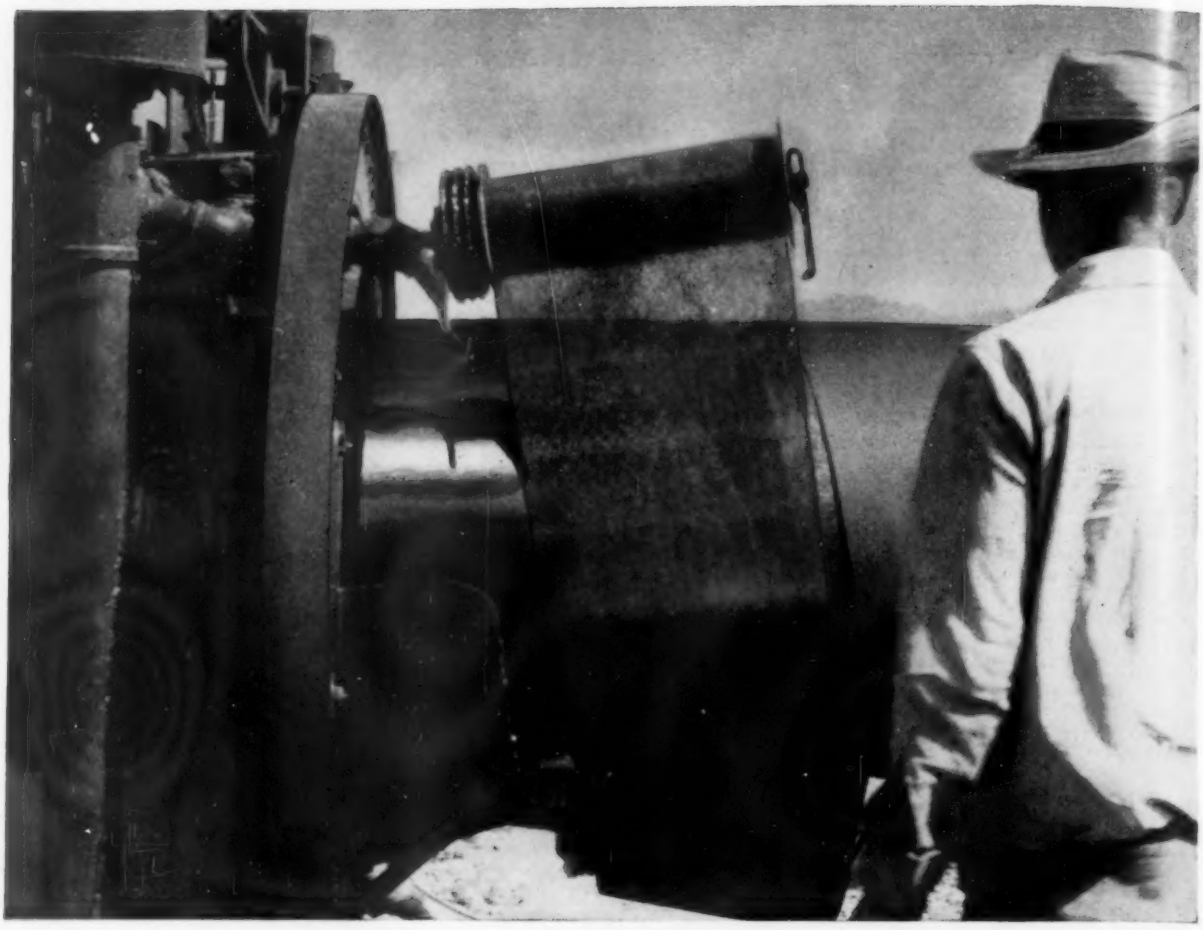
STANDARD MANUFACTURING SALES COMPANY • LEBANON INDIANA

FOOTE *Kinetic* MIXER

***for all* ASPHALT MAINTENANCE JOBS**

Here's a mixer for all types of asphalt patching jobs . . . driveways, parking lots, sidewalks, buildings: Wherever there is an asphalt patching problem. Take it anywhere; tow it behind a car or truck. It is easy to handle and will mix either hot or cold material. It will produce 3 cu. ft. in 30 seconds. The new Kinetic mixing principle assures a thorough coating of aggregates. For details, send for Bulletin K-100.

THE FOOTE CO., INC.
1958 State Street, Nunda, New York
Builders of...
Adnun Black Top Pavers, MultiFoote Concrete Pavers, and Foote Kinetic Mixers.



Owens-Corning FIBERGLAS*
the underground pipe wrap that's proved in use

When you specify OWENS-CORNING Fiberglas Pipe Wrap, you get an inorganic reinforcing material that's backed by years of research and manufacturing experience—and by successful application on many petroleum and gas pipe lines.

Fiberglas Underground Pipe Wrap is a thin, porous, web-like mat of long, fine fibers of glass. It provides a superior reinforcement for the bitumen coating that adds years of efficient, economical protection to your pipe line.

This mat is noncorrosive. The fibers are chemically inert, do not absorb the bitumen's life-giving oils, are unaffected by moisture or soil acids. The speed with which the wrap pulls into the coating before cooling assures a strong mechanical reinforcement; mat porosity permits bubble-forming air or vapors to escape quickly.

As the first step in cutting your corrosion-protection costs, send for complete information about OWENS-CORNING Fiberglas Underground Pipe Wrap. Write Owens-Corning Fiberglas Corporation, Dept. 954, Toledo 1, Ohio. Branches in principal cities.

In Canada: Fiberglas Canada Ltd., Toronto, Ontario.

OWENS-CORNING
FIBERGLAS
UNDERGROUND
PIPE WRAP

*FIBERGLAS is the trade-mark (Reg. U. S. Pat. Off.) for a variety of products made of or with glass fibers by Owens-Corning Fiberglas Corporation

Dusenberry Promoted By Line Material

W. M. Dusenberry has been promoted to the position of manager of the Southwest division of the Line Material Co., 800 N. 8th St., Milwaukee, Wis. Formerly manager of the Salt Lake City, Utah, district, Mr. Dusenberry's new territory will be New Mexico, Oklahoma, and Texas.

W. M. Dusenberry

Another recent appointment by Line Material is that of J. A. Varga, who has been added to the company's staff of field engineers to serve in the northern Indiana territory.

Ranney Companies Amalgamate

The Ranney Water Collector Corp. of New York, 33 West 42nd St., New York 18, N. Y., and Ranney Method Water Supplies, Inc., 507 Majestic Bldg., Columbus, Ohio, have amalgamated Each company will continue under its own name.

The main office will be at the Columbus, Ohio, address. A. Leland Glidden will be vice-president in charge of the New York office of the company; A. d'Audiffret, vice-president in charge of the Columbus office; R. G. Kazmann, hydraulics engineer, and Eugene Silitch, technical director in charge of operation of both companies.

Okonite Appoints Johnson Assistant Advertising Manager

T. G. Johnson has been appointed assistant advertising manager of The Okonite Co., Passaic, N. J., which manufactures insulated wires and cables.

T. G. Johnson

Mr. Johnson will be in charge of advertising and promotional work for the Hazard Insulated Wire Works Division, at Wilkes-Barre, Pa.

Mr. Johnson, who was trained in the Okonite research laboratory, has been associated with the advertising department for the past two years.

SPARLING MAIN-LINE METERS

with

Wide Flow-Range

INDICATOR—TOTALIZER

—Recorders—

THIS instrument (Type 215) operates by electric remote control from any Sparling Meter to furnish instant information on flow-rate in the line, with a 60-day record of all flows ranging from 3% to 100% of capacity!

The totalizer duplicates the one on your meterhead—all vital information just where you need it!

•

New Catalog — Bulletin 310
Comes at Your Request

SPARLING
Manufacturers of WATER MEASURING EQUIPMENT

LOS ANGELES 54.....Box 3277 Terminal Annex
CHICAGO 16.....3104 South Michigan Ave.
NEW YORK 17.....101 Park Avenue
CINCINNATI 2.....622 Broadway
BOSTON 8.....6 Beacon Street

Meet
The Lightweight
TUNNEL CHAMP!

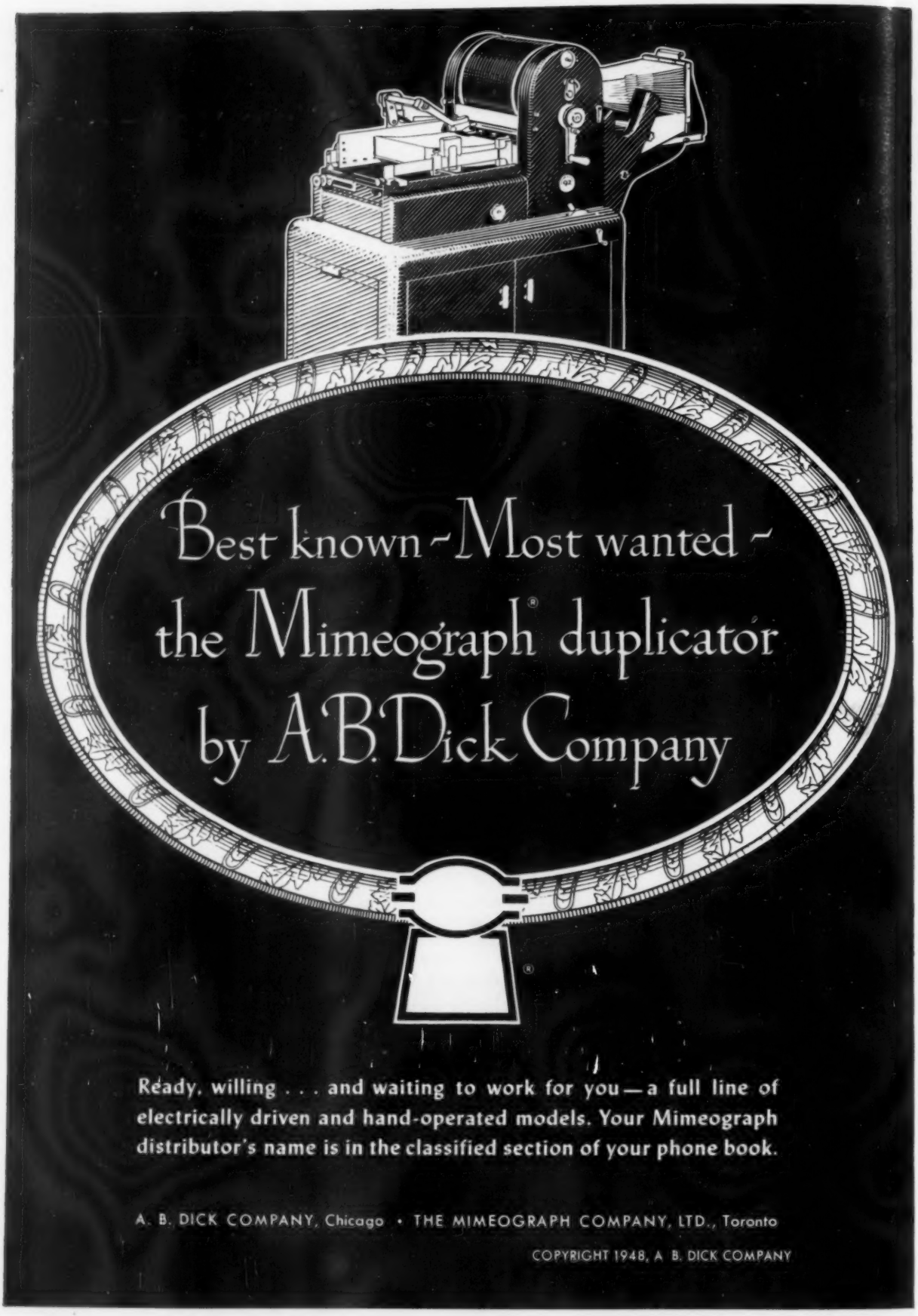
On a pound-for-pound basis ARMCO Tunnel Liner Plates are in a class by themselves. They save you money and speed the job.

These sturdy plates are designed for utmost strength with the least possible weight. One unskilled workman can carry, hold and bolt into place an ARMCO Liner Section. Only a structural wrench is needed. Labor costs are low and the job goes fast. Less bulk also means less excavation, and storage requirements are smaller. With ARMCO Plates you buy no excess metal, and this keeps job costs down.

Consider tunneling that next job with the aid of ARMCO Tunnel Liner Plates. You'll find it the simplest, most inexpensive way you ever saw to install conduits, sewers and similar structures. The hazards and inconvenience of open trenches are avoided and business above ground goes on as usual. Write for prices and complete information on your specific needs. Armco Drainage & Metal Products, Inc., 1965 Curtis Street, Middletown, Ohio.

ARMCO
TUNNEL LINER PLATES

ARMCO

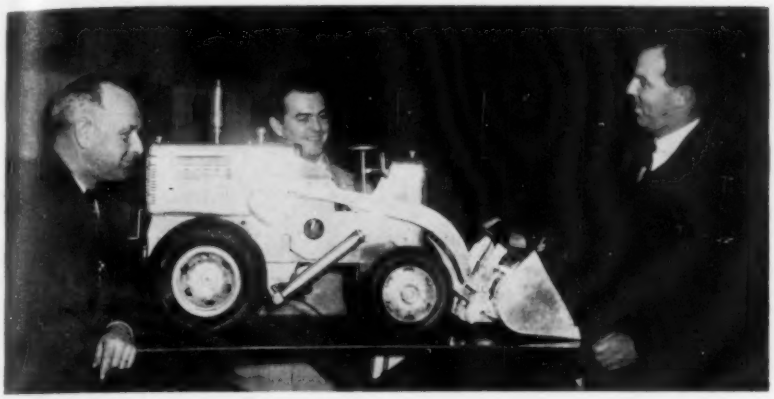


Ready, willing . . . and waiting to work for you—a full line of electrically driven and hand-operated models. Your Mimeograph distributor's name is in the classified section of your phone book.

A. B. DICK COMPANY, Chicago • THE MIMEOGRAPH COMPANY, LTD., Toronto

COPYRIGHT 1948, A. B. DICK COMPANY

Hough Model at Material-Handling Exposition



A chrome-plated working model of the Hough HL-A Payloader was on display at the National Material Handling Exposition in the Cleveland, Ohio, Auditorium.

The model, built for The Frank G. Hough Co., Libertyville, Ill., by Dick Thierman of Meili-Blumberg, is powered by a ¼-hp electric motor and illustrates the hydraulically raised and lowered booms and the lever that operates the hydraulic bucket control which is now standard equipment on the HL-A Payloader. This enables the operator to dump the load gradually or instantly, as desired, relieving shock load on trucks and speeding operation.

The model will be displayed at the American Road Builders Association Show in Soldier Field, Chicago, from July 16 through July 24, and at various conventions throughout the year.

Water-Hammer Control For Small Pipelines

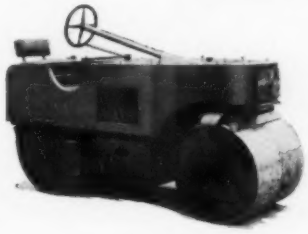
Help for the larger pipelines in overcoming the problem of water hammer can be obtained by a Pulsurge Arrester, according to Wade Mfg. Co., Elgin, Ill. The Arrester is designed for use on pipes varying from 3 to 6 inches. It may also be used on short lengths of 8-inch pipe.

The arrester provides large volumes of air at atmospheric pressure in a small air chamber. This pressurized air chamber allows the liquid to enter into the interior of the bellows, while the pressurized air is contained on the outside. These pressures can be varied anywhere between 10 and 300 psi. The material used is nitrogen instead of air in order to provide an inert material and avoid the possibility of fire hazard. Within this one unit there can be provided the equivalent of 7,000 cubic inches of air at standard atmospheric pressure.

A Roller For Every Job

Sturdy, heavy-duty rollers, engineered to stand up under the toughest conditions. Pierce-Bear Tandem Rollers are powered by economical Allis-Chalmers 4-cylinder industrial type gasoline engines. Variable weights, from 3½ to 5 tons with built-in water tanks for ballast and wet rolling.

Pierce Medium Bear
3½-5 tons



Pierce Baby Bear
2½-3 tons

The new 2½-3-ton Pierce Baby Bear is designed for close-in work and small area maintenance. It works against a curb up to 25 inches high and within 1½ inches of a higher wall or building. Final drive is within the rear roll. Use Pierce-Bear Tandem Rollers for all-around performance. Write for folder.

Pierce-Bear Rollers
Lewis Manufacturing Co.
415 Hoefgen Ave.—San Antonio 6, Tex.

How often are you refilling sweeper broom cores?

AFRICAN BASS FIBRES

INDIAN PALMYRA STALKS

Fresh, high quality fibres make a big difference in sweeper mileage you get between broom core refills. We are able to offer you the best fresh quality fibres in all types and sizes. Your inquiry will receive our prompt attention.

MOUNTAIN HICKORY SPLINTS

STEELWIRE CHINA SPLIT BAMBOO

The OTTO GERDAU CO.

Established 1872

82 Wall Street, New York 5, N.Y.

"KARDEX . . . helps us maintain effective control of tb. cases"

Public health nurses in the Bakersfield office examine the control record that helps prevent tuberculosis. Fingertip pull moves the slides from the Floor Model Kardex cabinets into flat position for posting or detaches them for study and review. Margin signal code sheets attached inside the cabinet covers provide convenient reference for interpretation of data.

say . . .
Public Health Officials of Kern County, California

Intelligent concern for combatting this "public enemy" has resulted in a *visible* records control system for tuberculosis cases in Kern County, California. Such control has been made a smooth-running routine—simple, compact and completely accessible with Kardex Floor Model Cabinets. Whether for planning and control of activities in connection with specific cases, or for making county-wide surveys, the Floor Model Units are moved easily to the point of use, and slides are reviewed swiftly and accurately.

This rapid administrative review is provided by signal control on the visible margin of the records; on each case colored signals flash the month of last contact and report, type and status, result of sputum test and class of supervision. When additional information is required, the whole story is instantly available on the individual record card: vital statistics, record of laboratory findings, hospitalizations and treatment, probable source of infection, employability—a comprehensive, detailed record in compact, *usable* form.

"Floor Model convenience and the flexibility of signal control of the visible margins," officials state, "make Kardex the ideal equipment, in our opinion, for a system of tuberculosis case control—help us conserve our human assets."

Remington Rand

THE FIRST NAME IN RECORD SYSTEMS

• If you have not received your copy of *Systems for Government Administrators,* mail a request today for this timely Remington Rand publication containing detailed description of latest developments in efficient record-keeping procedures in all branches of government. Call the Remington Rand office near you, or write Systems Division, 315 Fourth Avenue, New York 10.

A. B. Dick Case Settled

One of the government cases against leading American business enterprises was settled in the U. S. District Court in Cleveland, Ohio, on March 25, 1948, by the entry of a consent decree and a plea of *nolo contendere* concluding the anti-trust suits against A. B. Dick Co., Chicago 6, Ill., makers of the Mimeograph duplicator and supplies.

Under this settlement, all the defendents agree to the entry of a civil judgment and a plea of *nolo condendere* without trial or adjudication of any issue or fact or law and without any admission of guilt.

"The company chose this method of settlement to avoid prolonged litigation which might have slowed its continuing program of product research and hampered the building of a new factory and general office at Niles, Ill.," said A. B. Dick III, company president.

"Under the terms of the decree, the company, inventors of the stencil duplicator and pioneers of the duplicating process under the brand-name Mimeograph, relinquishes, six months from the entry of the decree, the exclusive right to that name."

He said that the company's products will now be known as "A. B. Dick Mimeographs and supplies," rather than by the trademark "Mimeograph" alone.

"However," he declared, "A. B. Dick Company retains full trademark rights to its other trademarks, including the brand-name 'Mimeotype,' which has been used for its top-quality stencil sheets, and the brand-name 'Mimeoscope,' which designates its illuminated drawing board."

For many years the words *mimeograph* and *mimeographing* have been growing in generic use, as applied by the public to the entire process of stencil duplicating, regardless of whether A. B. Dick Company's branded products or competitive duplicators and supplies were involved. Generic use of the brand name became particularly widespread during World War II, when the use of Mimeograph duplicators and supplies become such an essential part of military and factory procedures.

"The company for several years has recognized the possibility that its trademark would go the way of cellophane, aspirin, shredded wheat, and other brand names which became part of the language through general public use," said Mr. Dick.

"Therefore the company has put growing emphasis on the trade name A. B. Dick as identifying its products. Loss of the trademark and the exclusive use of the word *mimeograph* as a brand name is not regarded as serious, because recent surveys indicate that a large majority of distributors and users are now accustomed to refer to the company's products under the name A. B. Dick rather than by the trademark *Mimeograph* alone. Additional support for this change will now be given in national advertising.

"The company will dedicate certain non-basic patents, but this will not interfere with the company's business, as basic patents have long since expired. The company will no longer operate its 20 branch sales offices, but will expand its sales organization by appointing independent distributors in those areas where it now operates branch sales offices; the company has never followed a policy of selling exclusively at retail. The majority of users have always bought A. B. Dick products from independent distributors located in more than 200 markets throughout the United States."

The word *mimeograph* was coined by A. B. Dick, Sr., inventor of the stencil duplicator and founder of the company some 60 years ago.

In working out his invention, Mr. Dick was aided by the suggestions of Thomas A. Edison, and in its early years the first duplicator was known as the Edison-Dick Mimeograph.

"We expect to continue as the strong, stable factor in the field which we have pioneered for more than 60 years," Mr. Dick said. "Settlement of the suit means that our building program and product development can go forward without hindrance."

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.

DAM SAVED WITH "GUNITE"

The upper photo shows the condition of the downstream buttresses of a dam belonging to the Central New York Power Corporation, Trenton Falls, New York, about ten years after they were built.

The middle photo shows how we restored the buttresses with lean "GUNITE" to within two inches of the original lines, with reinforcing mesh placed preparatory to applying the final armor coat of two inch "GUNITE."

The lower photo shows the "GUNITE" work after completion.

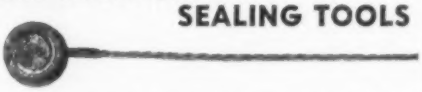
This "GUNITE" job has now been completed for twelve years, and a recent inspection showed the "GUNITE" to be in perfect condition.

Our 72-page general bulletin D2300 describes this and scores of other jobs, and we will be glad to send you a copy upon request.

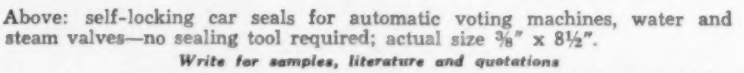
MANUFACTURERS OF THE "CEMENT GUN"

Insist on AMALEAD
THE WIRE WILL BREAK BEFORE IT WILL PULL OUT OF LEAD
Reg. U. S. Pat.-Off.
SEALS OF MERIT—for EVERY PURPOSE

WIRE SEALS and SEALING TOOLS



Above: seal for parking meter coin containers, water, gas and electric meters. Also padlock and coin bag seals and sealing tools. Wire lengths as required.



Above: self-locking car seals for automatic voting machines, water and steam valves—no sealing tool required; actual size ⅜" x 8½".

Write for samples, literature and quotations

E. J. BROOKS COMPANY
169 North 13th Street
Newark 7, New Jersey

1873—*Protecting Industry 75 Years*—1948

CICERO, ILLINOIS, TRAFFIC SQUAD USES HARLEY-DAVIDSONS EXCLUSIVELY!

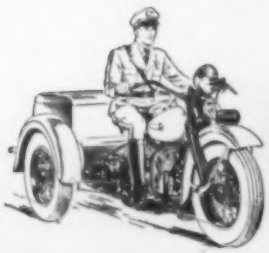
From left to right are Officers Herman Sabatka, Herbert Laube, Joseph Horeis, Charles Verbiski, Anton Hruby and Charles Rocush, and Superintendent of Police, Erwin Konovsky.

All traffic problems are easier to handle with motorcycle patrol

As in many cities the country over—whether large or small — the motorcycle squad of Cicero is equipped with Harley-Davidsons exclusively. Traffic experts recognize that no other method matches motorcycles for efficiently handling so many phases of traffic control work and accident prevention.

With traffic problems at an all-time peak—the menace of mounting injuries and deaths demands greater effort in dealing with accidents *before they occur*. Increase the effectiveness of *your squad* by equipping them with Harley-Davidson Police Motorcycles and Servi-Cars. Through their outstanding dependability, economy, and efficiency, they have established remarkable performance records in traffic control and accident prevention. Call in your Harley-Davidson dealer today and get complete information about the superiority of Harley-Davidson Motorcycles for police work.

HARLEY-DAVIDSON MOTOR COMPANY • Milwaukee 1, Wisconsin



HARLEY-DAVIDSON
POLICE MOTORCYCLES

Hi-Lift Loader Loads 8½ Feet High

This load is being dumped well over the center of the truck, even though the tractor can move 2 feet closer to the truck. The bucket is lifted about two-thirds of its total height.

The Drott Hi-Lift loader, built for the Oliver-Cletrac tractors, is hydraulically operated to load into trucks up to 8½ feet high. The unit, which may be used for bulldozing when desired, can load a 3-yard truck a minute when working on loose material.

With a capacity of 1½ yards, the Hi-Lift has a dumping clearance of 10 feet and 8 inches. The machine, manufactured by the Drott Mfg. Corp., 4344 N. Green Bay Ave., Milwaukee 12, Wis., has a control bucket which allows the operator to adjust the digging angle of the bucket to conform with ground conditions, preventing sliding or dragging of a tripped bucket or the necessity of dropping the bucket to the ground to close or latch it. Loads can be dumped gradually or instantaneously. In the digging position, the overhead is low so that operations can proceed in low-ceilinged quarters without any difficulty.

MORSE BOULGER

Two Bests

1 WASTE DISPOSAL BY INCINERATION

2 INCINERATORS BY SPECIALISTS

Foreground—rectangular combustion-mixing chamber; background—cylindrical ignition chamber; Morse Boulger Mechanically Stoked Incinerator, Sydney, Ohio

Select from this list of five different types and you will get the best type for your particular problem whether it is trash, garbage, sewage sludge, institutional organic matter . . . separately or in combination.

★**For Garbage and Rubbish**

(1) Cell and Hearth
(2) Circular Hearth and Grates—Mechanically Stoked

★**For Sewage Sludge Drying and/or Burning**

(3) Multiple Zone Furnace—Mechanically Stoked

★**For Garbage, Rubbish and Sewage Sludge**

(4) Circular Unit, Mechanically Stoked, with Separate Compartment for Sewage Sludge Reduction

★**For Garbage and Trash (Individual Buildings)**

(5) Kernerators (Flue-Fed and Ready-Built)

Our incinerator experience goes back nearly sixty years. Our work is guaranteed. Our incinerators are constructed under the supervision of our own field men who stay with it until the unit is in operation, fully broken in and crews instructed.

MORSE BOULGER DESTRUCTOR CO.

205-R East 42nd St., New York 17, N. Y.

REPRESENTATIVES IN PRINCIPAL CITIES

From Small Schools to Huge Plants . . .

WATER HAMMER is serious

but is so easily eliminated with

THE WILLIAMS-HAGER *flanged* SILENT CHECK VALVE

Write for complete information on The Williams-Hager Flanged Silent Check Valve—that has proven successful on the most difficult installations.

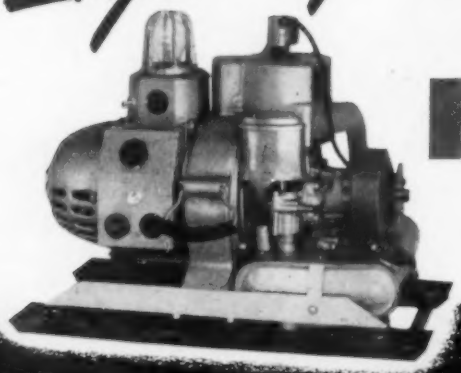
THE WILLIAMS GAUGE CO.

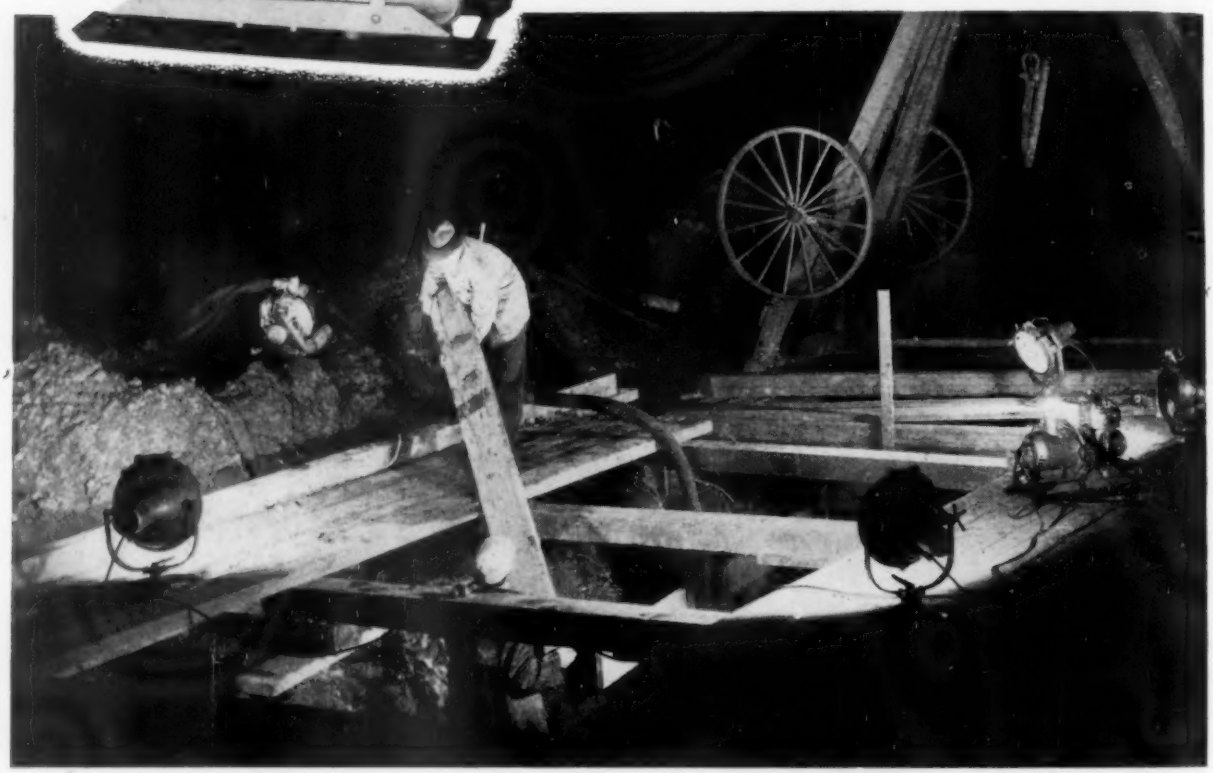
Pump Valves . . . Water Gauges . . . Gauge Cocks . . . Steam Traps . . . Pump Governors . . . Feed Water Regulators . . . Water Columns

3013 PENNSYLVANIA AVE. · PITTSBURGH (12), PA.

Light up and Speed up

Your Work with a HOMELITE Carryable Generator





It goes any place. It works any time. There in a nutshell are the prime reasons for having a Homelite Carryable Gasoline-Engine-Driven Generator handy.

It goes any place. You can pick it up and carry it. You can get it on the job quickly and without trouble. You can set it up for action *in any location.*

It works any time. It's a twenty-four hour work-saver. You use it at night for floodlights. You use it day and night for operating time-saving electric tools. You have it going any and every time you want work done faster and at lower cost.

See for yourself what it means, in terms of money and time saved, to light up and speed up your work with a Homelite Carryable Generator. Write today for a free on-the-job demonstration.

HOMELITE
Corporation

105 RIVERDALE AVENUE, PORT CHESTER, NEW YORK

Manufacturers of Homelite Carryable Pumps Generators • Blowers • Chain Saws

Sales Representative For Wilkinson

Joseph A. Kamenshine of 6550 Smedley St., Philadelphia 26, Pa., has been appointed sales representative for the Wilkinson Line Locator, manufactured by the Wilkinson Products Co., P.O. Box 1774, Wilshire-LaBrea Station, Los Angeles 36, Calif.

Jos. A. Kamenshine

Mr. Kamenshine, electronic engineer, formerly associated with Sperry Gyroscope Corp., furthered the development of radar during the war.

Wilkinson manufactures a line of light inductive-type underground line- and cable-locating devices.

Diesel-Engine Ad Men Hold Session

The third annual session of advertising managers and public relations directors of diesel-engine manufacturers was held recently in Chicago by the Diesel Engine Manufacturers Association, 1 North LaSalle St., Chicago 2, Ill.

The meeting opened with a discussion, outlining the advantages gained by such meetings, conducted by DEMA's president, Gordon Lefebvre, president and general manager of the Cooper-Bessemer Corp. This was followed by "Keeping Relations with Editors on the Right Basis" discussed by Frank A. Uniack, director of public relations for the Cleveland diesel-engine division of General Motors Corp. L. A. Harlow, advertising manager for Fairbanks, Morse &Co., put the question, "How can the Diesel Industry Cope with Future Power Competition?" as the title of his talk. "Capitalizing upon User Experiences" was discussed by Delbert Kay, advertising manager of Nordberg Mfg. Co. A. L. Davis, manager of the advertising department of Worthington Pump and Machinery Corp. emphasized selling diesels abroad. George H. Amberg, secretary of the educational committee of DEMA, gave a report of the Association's educational program, and "Selling the Diesel Idea" was the topic chosen by DEMA's public relations man, Harold D. Ellis.

"Profits Mean Progress for Everyone," a film recently developed by the International Harvester Co., was projected by the company's director of public relations, Dale Cos. The final discussion was by General Motors' Volney B. Fowler, director of advertising and public relations for the electromotive division, who spoke on "Overcoming Negative Factors in Selling Diesel Engines."

WEEDS are OUT at water works installations

DOLGE SS WEED KILLER

can be used to advantage in all areas containing water works installations, where no vegetation whatever is desired. Sprinkled on, in economical dilution, this formula works down to the roots, so that it destroys not only surface growth but the entire vegetable structure . . . particularly important where stand pipe locations must be considered. Keeps the growth down around high reservoirs; with proper application there is no danger that the solution will work into storage facilities.

E.W.T. Selective Weed-Killer

(2-4-D) maintains your landscaping but eliminates noxious weeds. Non-injurious to most grasses, E.W.T. aids in keeping a "well-groomed" appearance to the grounds around your pumping plant, purification plant, storage facilities and administration building.

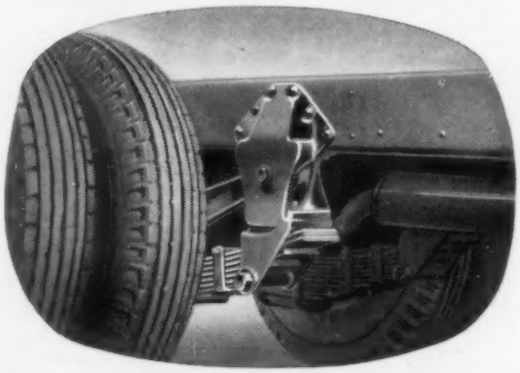
Both DOLGE WEED KILLER and E.W.T. SELECTIVE WEED KILLER have their place in your ground maintenance program. They forestall hours of expensive labor devoted to weeding by "going to the root" of the weed problem.

Complete literature will be sent on request. If you have an unusual weeding problem, we shall be glad to suggest specific methods for dealing with it.

The C. B. DOLGE CO.
WESTPORT, CONNECTICUT

What It Takes FOR HEAVY HAULING

When you buy a GMC for heavy hauling you get a truck that's heavy duty and all truck. GMC heavy duties have big, brawny frames . . . with wide, thick-leaved springs to match. They have heavy, husky axles and transmissions that combine to provide as many as 15 forward speeds . . . brakes up to 21 inches diameter . . . heavy disc clutches. Engines are powerful valve-in-heads . . . with extra heavy Tocco-hardened crankshafts and many other durability features. Yes, GMC heavy duties have "what it takes" . . . and many models are now available for quick delivery.



The massive frame, heavy springs and rugged radius rod drive of this dump model typify GMC heavy duty truck design. GMC heavy duties are built in gross weight ratings of 19,000 to 90,000 pounds, for every hauling job. See your GMC dealer.

THE TRUCK OF VALUE

GASOLINE • DIESEL

GMC TRUCKS

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION • PONTIAC, MICHIGAN

American Concrete Pipe Association Holds Convention

The nominating committee of the American Concrete Pipe Association: D. A. Dunkle, American Pipe and Construction Co., Los Angeles, Calif.; C. A. Bluedorn, Zeidler Concrete Products Machinery Co., Waterloo, Iowa; E. A. Neuman, Mission Concrete Pipe Co., San Antonio, Texas; J. D. Mollendorf, chairman, Illinois-Wisconsin Concrete Pipe Co., Chicago, Ill., and H. M. Shaw, N. C. Products, Inc., Raleigh, N. C.

At the recent 40th annual convention of the American Concrete Pipe Association, 228 N. LaSalle St., Chicago, Ill., which was held in New Orleans, La., J. A. Dunn, Hume Pipe of New England, Swampscott, Mass., was chosen president. Retiring president Elmer Johnson of Concrete Conduit Co., Colton, Cal., was elected to the board of directors. George Denham, Faulkner Concrete Pipe Co., of Hattiesburg, Miss., was reelected secretary, and Claire Bullen, Mid-West Concrete Pipe Co., of Chicago, Ill., was reelected treasurer.

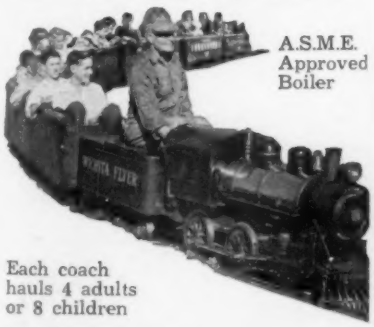
New vice-presidents are: H W. Heath, Lock Joint Pipe Co., East Orange, N. J.; Claude Kelly, New Orleans Cement Products Co., New Orleans, La., and Earl H. Eby, Elk River Concrete Products Company of Montana, Helena, Mont. Harry W. Easterly, Concrete Pipe and Products Co., Richmond, Va., and H. S. Price, Jr., Price Brothers Co., Dayton, Ohio, were elected board members.

Hendrick Appoints J. J. Risko Assistant Sales Manager

The Hendrick Mfg. Co., of Carbondale, Pa., which manufactures perforated metals, screens, and open steel flooring, has appointed John J. Risko assistant sales manager.

MINIATURE STEAM TRAIN BURNS COAL

Also Operates on Compressed Air



A.S.M.E. Approved Boiler

Each coach hauls 4 adults or 8 children

The most popular ride in your park. A proven revenue builder.

Pays for itself in one season.

An exact working replica of Santa Fe steam trains. A fascinating ride.

Write for prices and folder

Ottaway Amusement Co.

224 W. Douglas, Wichita 2, Kansas

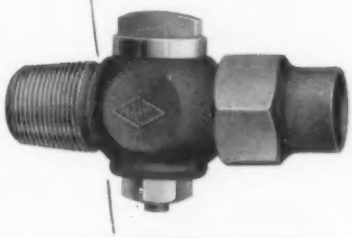
CIRCUL-AIR FIRE HOSE DRYER

WRITE FOR BOOKLET

Illustrates how Circul-Air saves hose, shortens drying time, prevents mildew and rot, air conditions as it dries, improves station design.

THE CIRCUL-AIR CORPORATION
575 E. Milwaukee Street
DETROIT 2 MICHIGAN

BEST BY FAR



... McDonald's Diamond Line

Yes, 92 years of supplying the trade can only mean that the quality is high . . . the service is dependable . . . the products are the best. And since 1856, the trade has come to rely on McDonald's Diamond Line as the standard of quality in Waterworks goods. Illustrated is a Diamond Line Corporation Stop for copper service pipe. Inlet is Mueller thread, outlet is Mueller Service Pipe Thread for copper tubing, same size as stop except 5/8 inch, which is for 3/4 inch copper tubing. In sizes 1/2, 5/8, 3/4, 1, 1 1/4, 1 1/2 and 2 inches.

Plan now to attend the A.W.W.A. convention

EST. 1856 McDonald

A. Y. McDONALD MFG. CO.

DUBUQUE, IOWA

BRASS GOODS • PUMPS • OIL EQUIPMENT

HAT RACK FOR NEW INDUSTRIES!

More and more plants are hanging their hats in towns where there's SOFT WATER! It's the big attraction! ¶ To practically every industry, soft water is a necessity. In every plant it lowers costs, increases quality and speeds up production! No wonder new industries pick soft-water towns over all others! ¶ Get full information on Permutit's efficient, economical water softening equipment. Write to The Permutit Company, Dept. A-5, 330 West 42nd St., New York 18, N. Y., or to the Permutit Company of Canada, Ltd., Montreal.

Permutit

WATER CONDITIONING HEADQUARTERS FOR 35 YEARS

New Products Displayed to Good Roads Dealers

The new Champion Leaf Collector demonstrated at the recent meeting of the Good Roads Machinery dealers. Other machines were also exhibited.

A number of post-war developments in its line of snowplows, aggregate spreaders, and leaf collectors were recently exhibited to its dealer organization by the Good Roads Machinery Corp., Minerva, Ohio.

Prominent among the items shown at the Minerva meeting was the new Champion Leaf Collector for removing leaves from city streets and preventing the clogging of sewers and drains. The Champion Handy Spreader for use in road maintenance and road construction was also shown, as well as the full line of Champion snowplows, the Model Bk-44 Spreader, and the Model 4-U Spreader and Safety Seat.

New Appointments, New Plant For Aeroil Products

Fred C. Wittig **M. M. Yarrington**

As Aeroil Products Co., Inc., Park Ave. at 57th St., West New York, N. J., prepares to move into its new half-million-dollar quarters in South Hackensack, N. J., the company announces the appointment of M. M. Yarrington as vice-president and general manager, and Fred C. Wittig as assistant general manager.

Manufacturer of the Aeroil Heet-Master asphalt kettles, the No. 99 flame gun, and other oil-, gas-, and electric-fired machines for street departments, the company made the promotions as part of its reorganization of the firm in the direction of expanded production.

Mr. Yarrington, former president of a New York advertising agency, became Aeroil's sales and advertising director twelve years ago. Mr. Wittig helped to build the first burner unit turned out by the company more than 31 years ago. He became plant manager in 1936.

Davis to be a Manager Of Portland Cement Assn.

A. M. Davis of Lansing, Mich., has been appointed manager of Midwestern Offices of the Portland Cement Association, 33 W. Grand Ave., Chicago, Ill. Mr. Davis succeeds to the position made vacant by the recent election of Carl D. Franks to the position of vice-president for promotion. Filling Mr. Davis' vacated position of district engineer in charge of the Association's office in Lansing is J. Gardner Martin.

Mr. Davis joined the staff of the Association in 1927 as a field engineer, following work as an engineer with the Indiana Department of Conservation and the Indianapolis Sanitary District.

NIAGARA *for Hard Water*
AMERICAN *for Soft Water*

● Hard water acts like an electrolyte. A galvanic action occurs when iron and a copper alloy are both used in a water meter measuring hard water. Minute currents flow from the bronze working parts to the iron case. This action minimizes corrosion of working parts. If deposits occur, they tend to form on the casing where they do no harm.

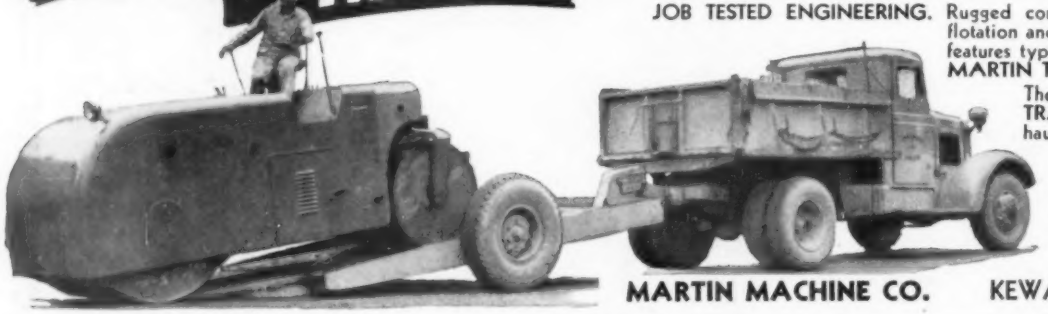
In most types of hard water, the Niagara galvanized iron case meter is usually recommended. In softer water where the pH is below approximately 7.5, and for most water obtained from surface sources, the American with bronze case is commonly specified.

50 years' experience proves that both models are necessary and each has its proper place.

Send for literature on the design of Niagara, the successful galvanized iron case meter.

HOLD EVERYTHING!
SEE THE NEWEST AND BEST
LAKE SHORE
PERMANENT ALUMINUM STREET SIGNS
LOW COST NO MAINTENANCE
VISIBLE DAY & NIGHT
Wire or Write Today for Complete Information
Catalog #20-5 Illustrated
LAKE SHORE MARKERS
Div. of Lake Shore Pattern Works
654 W. 19th Street, Erie, Pa.

MARTIN model 22 TRAILER



ANNOUNCING A VERSATILE NEW TRAILER WITH A CAPACITY OF 5 TO 7 TONS.
EXTREMELY LOW PLATFORM HEIGHT. Rollers, Track tractors, and bulk material easily loaded and transported.
JOB TESTED ENGINEERING. Rugged construction, ample flotation and adequate safety features typify all models of MARTIN TRAILERS.
There is a MARTIN TRAILER for every hauling job.
At your request let us send you detailed specifications and prices.
MARTIN MACHINE CO. KEWANEE, ILL.

Growing Popularity of Good Uniforms

From left to right: 1. An overall and blouse combination. The overall's fabric is Reeves 8-ounce herringbone twill; the trim, square, collarless neckline of the blouse makes for coolness and comfort. 2. Design for a mechanic, embodying the principle used successfully in baseball uniforms for many years. 3. Apron and dress ensemble in a soft color named "Indian Corn." 4. Shirt and trousers combination offered as an alternative to workers who reject the idea of overalls. 5. All-purpose, coat-dress smock. 6. Uniform for airport or airlines personnel. 7. "Milkman" type, suitable for meter readers, etc. 8. Suit for municipal garage or service station attendants. 9. Bus driver's uniform. 10. Waitress, dress. 11. Open-throat, collarless "coverall," a one-piece garment in serviceable blue. 12. A Cookman design for a surgeon's gown that has, underneath, an entirely new type of a wash-up suit.

An industrial fashion show presenting a "new functional look" was recently sponsored by Reeves Brothers, Inc., New York 13, at the Hotel St. Regis Roof in New York. The industrial garments, some of which are shown here, were viewed in less than an hour, but are the results of months of study in the field. "One of the most important things I found out," says Mrs. Helen Cookman, who designed them, "is that workers like uniforms when they are properly designed and easily maintained. Clothes to work in should be as smart and sensible as sport clothes. I feel that the psychological effect on a uniformed worker's morale by his or her pride of appearance while on the job is a tangible asset to employee and employer alike."

The story of how Reeves Brothers first became interested in this project was told by President J. M. Reeves: "Our first inspiration came from Admiral Richard E. Byrd, member of the Board of Directors of Reeves Brothers, Inc. Prior to Admiral Byrd's Second Antarctic Expedition he asked one of our affiliates to help him in developing a finely woven cotton fabric which would fit the rigid requirements for wear at the South Pole. Byrd Cloth, the first American fabric to combine water-repellency and wind-resistance, was the result. This textile research and development along functional lines started a chain of events which reached its peak during the war effort and which has continued into the present post-war period.

"Let me make it clear that Reeves Brothers is not in the business of manufacturing industrial uniforms. It is the function of our eight mills and finishing plant to make cotton fabrics to fit the many requirements of active Americans

(Continued on Next Page)

at work and play. We leave it to the many capable cutters to produce the actual garments and hope that our contribution through Mrs. Cookman may prove not only of interest but of lasting value."

The Reeves fabrics that were used in the new designs are also used extensively in uniforms for policemen, firemen, street - cleaning workers and other city employees. Reeves Glengarrie poplin is widely used in shirts in firemen's, policemen's and letter carriers' uniforms. (Dixie poplin is used extensively in New York City.) Herringbone twill is also used for street-cleaners' and highway-patrolmen's uniforms.

Melting Kettles For Tar and Asphalt

In addition to the immersion-tube or internal-fired type of melting kettle, which has the advantage of fast heating, the Hauck Mfg. Co., 112-122 Tenth St, Brooklyn 15, N. Y., also offers the regular bottom-fired kettle, popular with many officials in municipal highway and street departments. In this

An 80-gallon trailer kettle of the immersion-tube type.

type the material is contained in an inner melting tank which is in turn held by an outer shell. The heat, by means of a torch-type heating burner, is introduced between the two shells.

The kettles may be fitted with spray attachments, making it possible to apply material under pressure. The spray attachments are either hand-operated or of the power-operated type (gasoline engine) and can be supplied with the kettle by the manufacturer.

Both the immersion and the under-fired kettles are available in trailer, stationary, or skid models in capacities of 55, 80, 115 and 165 gallons.

Stuart to Handle Hardinge in Southeast

Fred Stuart of Stuart Corp., Baltimore, Md., has been apointed sales agent for the Hardinge Co., Inc., York, Pa. Mr. Stuart, who will handle the company's products of automatic backwash rapid sand filters, clarifiers, and digesters for the municipal and sewage fields in the southeastern states, is well-known in the water works field.

A.G.C. Institutes New Research Department

A department of research to study and correlate information on contract documents and specifications, uses and cost of owning construction equipment, and construction statistics has been created in the national office of The Associated General Contractors of America. The manager of the new department will be Harry J. Kirk, according to an announcement made by H. E. Forman, A. G. C.'s managing director.

Archie N. Carter, associate editor of *Engineering News-Record* and *Construction Methods* and Washington editor of these publications since 1945, will be the new manager of the Highway Contractors' Division, previously under the direction of Mr. Kirk.

Portland Cement Elects Vice-president for Promotion

Carl D. Franks, previously Midwestern regional manager in charge of the work of seven district offices covering field promotion in 10 states, has been elected vice-president for promotion of the Portland Cement Association, 33 W. Grand Ave., Chicago 10, Ill. Mr. Franks will now be in charge of the Association's promotional activities throughout the country.

Abandoned by the original contractor as impossible to clean because of an unusual amount of bends, "Ts", angles and valves in a 6" line in service at Fort H. G. Wright, Fisher's Island, N. Y., the same line was successfully cleaned by the National Water Main Cleaning Co.

The more than 40 years of technical skill and experience that enabled National to succeed where others failed, is available for cleaning your water mains.

Ask us for an estimate based on restoring your line to at least 95% of its original capacity.

24

NATIONAL WATER MAIN CLEANING COMPANY

50 CHURCH STREET, NEW YORK 7, N. Y.

ATLANTA	1221 Mortgage Guarantee Building	ST. LOUIS	7103 Dale Avenue
BOSTON	115 Peterboro Street	SALT LAKE CITY	149-151 W. Second So. St.
CHICAGO	205 West Wacker Drive	SAN FRANCISCO	681 Market Street
HOUSTON	2518 Grant Street	MONTREAL	2028 Union Avenue
KANSAS CITY	421 BMA Building	VANCOUVER, B. C.	505 West 1st Avenue
LOS ANGELES	448 South Hill Street	WACO	P. O. Box 887
MEMPHIS	822 Dermon Building	WINNIPEG	576 Wall Street
OMAHA	3812 Castellar Street	HAVANA - MAYAGUEZ, PUERTO RICO - BOGOTA	
RICHMOND	210 East Franklin Street	CARACAS	MEXICO CITY

McWane PRECALKED Pipe

"Just Socket the Spigot and Calk!"

Most Economical TO LAY!

Pure lead and redwood wedges placed in the pipe bells at the factory makes McWANE PRE-CALKED CAST IRON PIPE easy to lay . . . and cuts the cost of installation. One man with a calking tool and hammer can lay McWane pre-calked pipe as fast as the trench is dug.

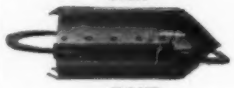
▼

ALL SIZES
2" Thru 12"

McWANE CAST IRON PIPE CO.
BIRMINGHAM, ALA.

KEEP SEWERS OPEN with OK CHAMPION POWER SEWER CLEANER

OPEN



CLOSED

Town and City officials throughout America are adopting OK CHAMPION Power Sewer Cleaner to keep sewers clean and efficient. Takes roots, dirt, sand, and other debris up from main in one continuous operation. All men work above street level.

Pulling forward opens the jaws that bite into obstructions. Reversing the pull on the bucket automatically closes jaws which hold load pulled back to street level. Write for complete details.

CHAMPION CORPORATION 4716 SHEFFIELD HAMMOND, IND.

The Sensational New FEATHERWEIGHT

MODEL 87
GOLDAK PIPE LOCATOR

Goldak Invites Comparison

- Shows - not approximate but *EXACT* location of buried pipes, mains, services, gates, tees, ells, stubs, etc.
- Completely new electronic circuit provides an incomparably strong positive location signal.
- No trick tubes or other hard-to-get parts. Uses readily available standard miniature radio tubes and flashlight batteries.
- Compact in design, ruggedly built for lifetime use.
- Operating simplicity. A one-man instrument.
- Featherweight - only 11 lbs. complete.
- Guaranteed superior performance - resulting from 15 years of electronic research and construction of locating instruments.

GOLDAK *OUTSELLS* - BECAUSE IT *EXCELS*

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Subsidiary
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Pipe-Wrap Prevents Exterior Corrosion

Fiberglas wrap, and coating, being applied to an underground pipe line.

In those areas where it is necessary to lay water mains through corrosive soil, deterioration of the mains can be prevented by the use of Fiberglas Underground Pipe Wrap. Owens-Corning Fiberglas Corp., Dept. 954, Toledo 1, Ohio, has on file and will make available test data showing the efficiency of the wrap under various soil conditions.

The wrap possesses sufficient strength for high-speed application at standard machine tensions and coating application temperatures. In its manufacture, the porosity is carefully controlled to produce uniform bleed-through of coatings through application. This insures a continuous film of coating. The manufacturer emphasizes the economy of the pipe-wrap through its low initial cost, plus the savings in application time.

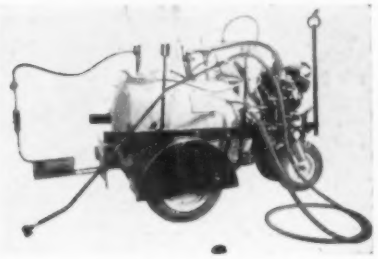
Light Motorcycle For Maintenance Crews

The Harley-Davidson 125, manufactured by the Harley-Davidson Motor Co., Milwaukee 1, Wis., is particularly useful for maintenance and check-up personnel who have a lot of territory to cover and not too many tools.

Equipped with a single-unit motor and transmission, the air-cooled, two-cycle, single-cylinder motorcycle achieves speeds from 40 to 50 mph. The brakes are large 5-inch internal-expanding type, one on each wheel.

The motorcycle comes equipped with a 5½-inch adjustable, double-filament headlamp; a tail lamp; a 10-ampere-hour storage battery, and a disc-type horn operated from the right handlebar.

TARCO'S SPRAYER



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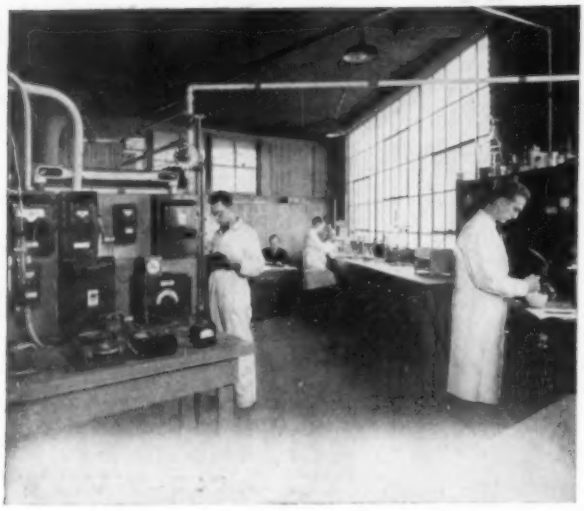

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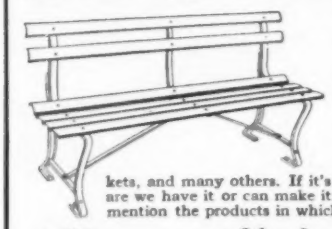

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THE AMERICAN CITY

Bucket Loader Is Heavy, But Maneuverable

The K-5 bucket loader, manufactured by N. P. Nelson Iron Works, Inc., Clifton, N. J., is built heavily enough for pit and street work, yet is maneuverable enough for busy yards.

Equipped with a two-strand elevator and four-speed transmission, the loader has separate twin-disc clutches that control the traction and elevator, the latter having an automatic overload release to prevent the possibility of damage to the machine.

Feeder spirals loosen the material first, then heap it into the buckets, completing the two actions at speeds up to 2 yards a minute. Powered by a 27-hp LeRoi gasoline engine, the K-5 handles earth, gravel, or broken stone up to 2½-inch size. It moves under its own power over short distances and is equipped with a self-steering towbar for towing between widely scattered jobs.

For a bulletin describing the bucket loader in detail, write to Dept. 2E of the company.

Kennedy's New Officers

The Kennedy Valve Mfg. Co., Elmira, N. Y., has elected Charles F. Kennedy president. Matthew E. Kennedy, who has been president of the company since 1928, was elected chairman of the board of directors; he will also retain his position as treasurer.

Charles F. Kennedy

The new president has been with the company since 1937. In 1947 he was promoted from assistant works manager to vice-president and works manager.

The company's vice-president and secretary, Leon H. Marsh, died recently following a heart attack. He had been with Kennedy Valve since 1918, starting as traffic manager.

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• Keep your tanks in continuous service (no downtime for painting)
• Reduce tank maintenance and servicing costs

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• Approved by national and state authorities, Rusta Restor employs the principles of electro plating to maintain the tank in a "neutral" condition that not only prevents rusting, but also removes the effects of any earlier rusting. Inexpensive to install—cheap to operate—safe. Write for descriptive catalog today!

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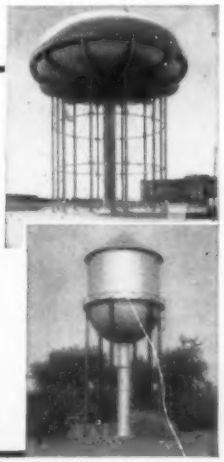

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May be driven over without pickup in 15 to 30 minutes according to weather conditions.

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Your own records will prove that Zonemark outwears other paints.

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Impartial tests prove Zonemark has 10% to 30% greater coverage.

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One coat covers the darkest surface with a clear-cut opaque film.

5 **DAY AND NIGHT VISIBILITY**
Correct surface finish assures greatest visibility by night or day.

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no other traffic paint has ALL these advantages

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Available in
White • Medium Yellow
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ZONEMARK
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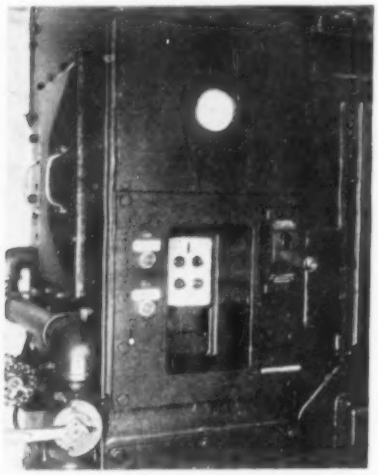
Dual-Fuel Diesels With Push-Button Shift

Another advance toward simplicity of operating dual-fuel diesel engines has resulted from the development of automatic electrically controlled accessories operated by two push-buttons.



Push-buttons on the new Superior dual-fuel diesel engine convert it from oil to gas and from gas to oil while running under load. Other controls are the "run-stop" lever (right), "air-starting pull handle" (below), the governor adjusting knobs (inset, center), and the manual gas-line valve (lower left).

With them all mechanical operations that are required in converting the engine from one fuel to the other, except pushing one of the two buttons, are made automatically.

Designed by The National Supply Company's Superior Engine Division, Springfield. Ohio, the engines, with the new type of control, give no indication of fuel changes while operating under full or partial loads except by indicator lights above the two change buttons, or an alarm signal if desired.

The dual-fuel substitutes a portion of gaseous fuel mixed with combustion air for a corresponding portion of liquid fuel. The engine continues to operate on the diesel cycle with compression ignition. When the Superior dual-fuel operates as a full diesel, with fuel oil alone, there is no functional difference between it and other diesels not equipped for dual fuel—the fuel oil is ignited by the heat of compression. With gas as the fuel, however, ignition by the heat of compression is augmented with a small amount of fuel oil injected into the combustion chamber; the oil ignites readily, igniting the gas-air mixture in the cylinder. The amount of this pilot oil is a small percentage of what the fuel-oil consumption would be if the engine were operating as a full diesel on fuel oil alone.

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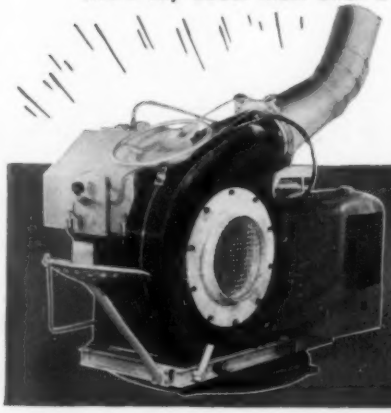

***WRITE* for complete information on MIST BLOWING from The Lawrence Aero-Mist Sprayer Company, Greenfield, Mass., U. S. A.**

The LAWRENCE
AERO-MIST
SPRAYER

Mathieson's Air-Borne Flood-Control Carton

A. E. Wennerstrom of The Mathieson Alkali Works shows winged carton of sanitation chemicals to pilot Bella Heineman, who flew plane in experimental drop.

Representatives of flood-relief agencies recently witnessed a successful experiment in delivering sanitation chemicals by air to communities isolated by floods. A special winged carton, requiring no parachute and containing chemicals which help to prevent flood-borne disease, was used for the test drop from an airplane at Westchester County Airport. The experiment was conducted by The Mathieson Alkali Works, 60 E. 42nd Street, New York 17.

According to D. W. Drummond, Mathieson vice-president, each carton will carry six 5-pound cans of calcium hypochlorite, enough to purify up to 2½ million gallons of drinking water, depending on the degree of contamination.

Heil Appoints Simons Sales Manager

William E. Simons has been appointed general sales manager of the Heil Co., Milwaukee 1, Wis. Mr. Simons, who has been sales manager of the truck body and hoist division of the company for several years, now heads all six divisions.

Wm. E. Simons

Other executive appointments include those of Harry F. Pugh to vice-president in charge of sales and advertising; Arnold F. Meyer to vice-president in charge of engineering; Joseph J. Rosecky to vice-president in charge of manufacturing; J. F. Horn to controller, assistant secretary and assistant treasurer; Earl G. Gilmore to assistant treasurer; Allan E. Magee to assistant secretary of The Heil Co. and secretary of Arnold Dryer Co., and Ed Fellows, Jr., to director of purchases.

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AT

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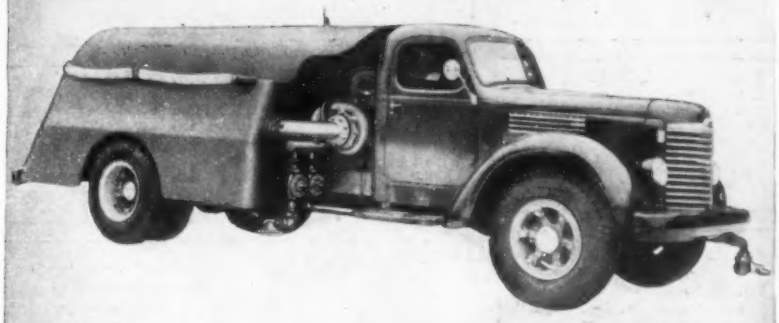

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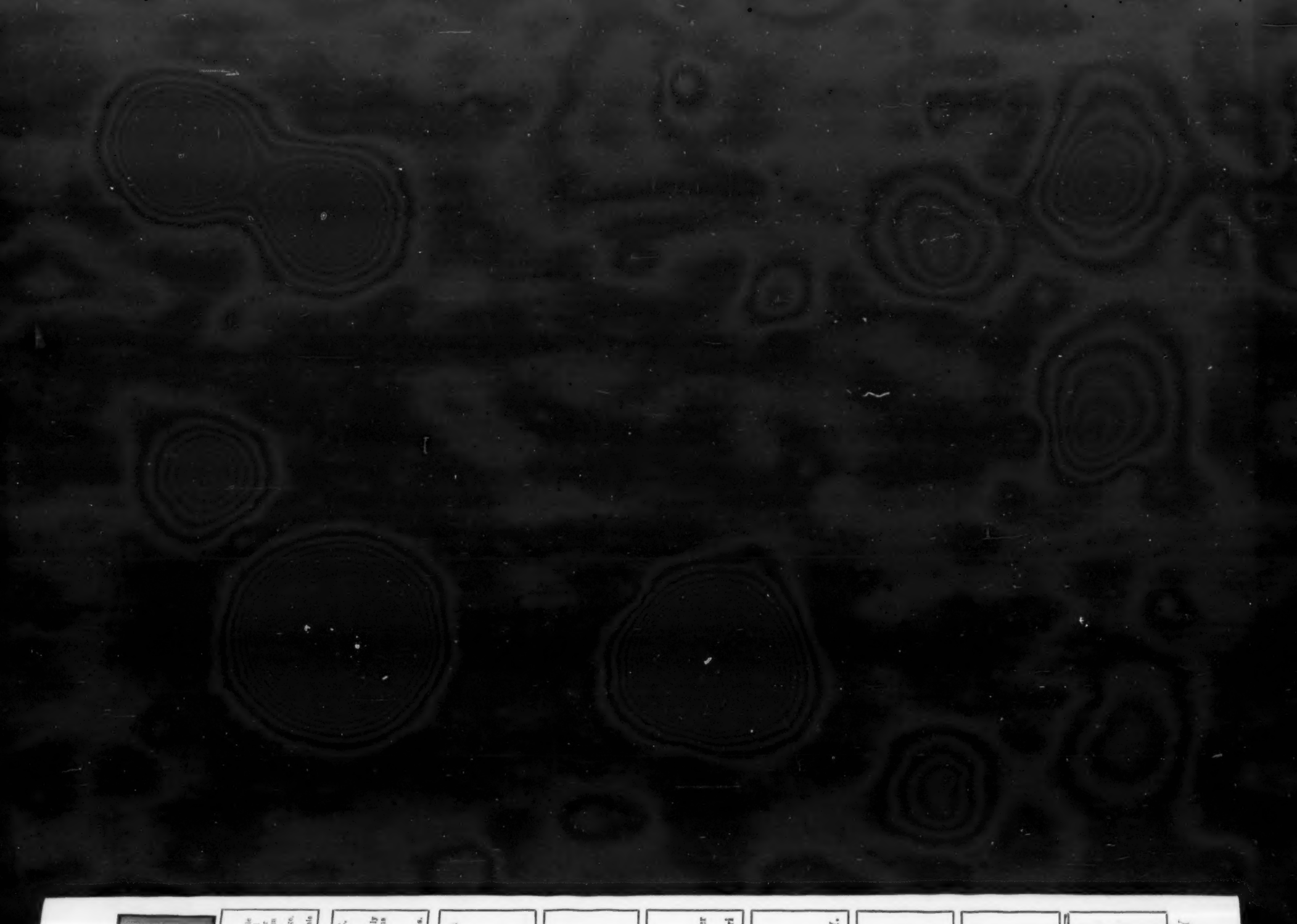

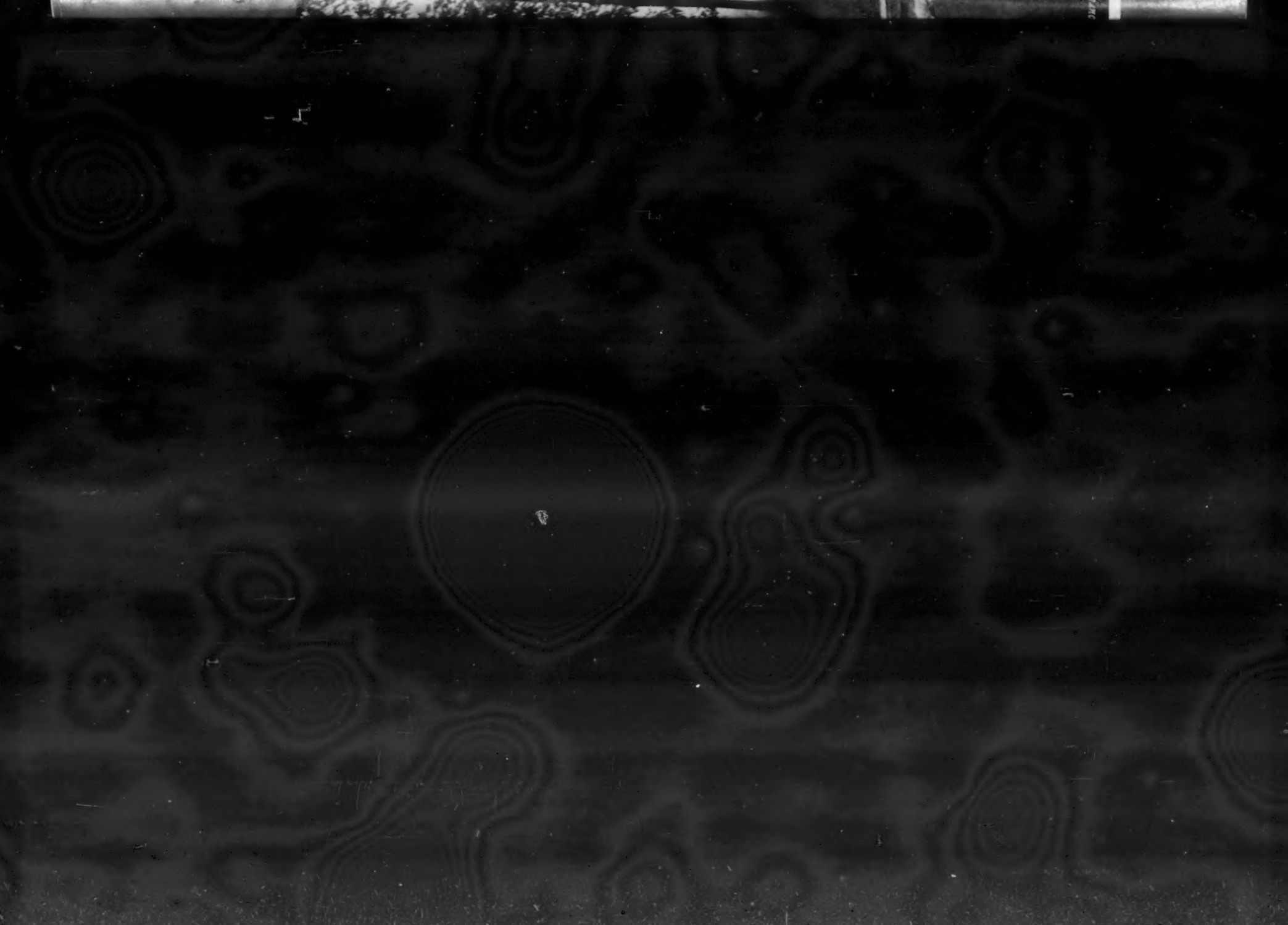

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